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The Northwestern Miller

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MILLING PRODUCTION SECTION

JULY 12, 1944

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Volume 219 • Number 2

IT TAKES *Cotton* TAILS TO WAG WAR DOGS

The tail control-surfaces of many of today's fighting aircraft are covered with *cotton fabric* even though wings and fuselage are metal.

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Opportunities for Milling Technology

By TIBOR A. ROZSA
Ismert-Hincke Milling Co., Topeka

EVENTS happen fast and furiously in these war days. Due to a development of outside circumstances, a 15- or 20-year-old dream of the milling industry seems suddenly at the threshold of realization. The stage is set and the incentive or invitation for research in milling is at hand.

Research is systematic and purposeful fact-finding. When one goes out in the mill and empties an elevator boot, counts, records and classifies the number of insects that might possibly be in it, he is doing research. Each man in the Institute of Milling Technologists is constantly doing research work. It is regrettable that only a small portion of the work done is published in technical journals or is coordinated with the work of others.

Authorities on industrial research agree that such work has three principal objectives: To lower production costs, to improve the product and increase its sales appeal; to find new uses for old products and by-products; and to find use for new materials and new devices in the industry.

Provision should be made for the cataloging and classifying of existing data on a given subject in any research program, as well as for the presentation of new facts. A research organization must stand ready for service, work out specifications and standards for general use.

The experts distinguish between two kinds of research. The first kind is the extensive, basic research that has no immediate objective other than it is concerned with pure science and seeks to discover the natural laws pertaining to processing materials. The second kind is the intensive, applied research with very definite practical and immediate objectives. The fruits of research work go to various engineering organizations for development until finally the public and industry generally share the benefits.

A large corporation whose business depends upon research conducts it along the following lines: Sales, marketing, pure laboratory work and development shop (pilot plant), products research, engineering and manufacturing research. Attached to those departments are usually a library and a service department to co-ordinate the work and to handle public relations.

Many industries go to institutions, universities and colleges, or to some research foundations and through them work out their special problems. These institutions have varied plans for working out the financial details of the arrangements. As an example, one such institution offers:

A. Full patent ownership to the client for full expenses incidental to the research project.

B. Patent ownership goes to trust management. The clients gets part of the royalties and free use of the patent.

C. The patent is owned by a trust. The client gets nothing free except use of the patent.

D. The patent goes to the inventor. The client gets only free use of the patent with the inventor getting the royalties.

Research is conducted successfully by co-operative trade association laboratories. The expenses of the work are carried by (1) specific individual contributions, (2) assessment, (3) endowment. Authorities strongly recommend that such research laboratories should not undertake to solve manufacturing difficulties or problems which involve too many variables. Most of the research problems in the milling industry have those latter mentioned characteristics.

Milling research is being carried on in different countries and in different forms. The Research Association of the British Flour Millers maintains a laboratory in Albany, England, under the direction of Dr. E. A. Fisher. Some persons in the industry in this country believe that this laboratory could serve as a pattern for the American millers.

In continental Europe milling research is done almost entirely by government-operated laboratories. There are a few privately owned organizations—Brabender in Germany and Kent-Jones in England—which apparently make some profit out of milling research in normal times.

Research on some milling problems has been and is in progress in the United States at present by some government agencies, mostly by the Bureau of Plant Industry, and by some state colleges and universities. This research, however, is more of the applied type than the fundamental type, and some valuable work has been done. Many of the larger milling concerns also conduct some research in milling.

MILLING is the processing of grains for human food, for animal feed and for utilization by industry in the manufacture of other products. We process the grains into the kinds of products the public and our customers want. We grind them either with all their constituents in the product, or we make separations of the different parts of the kernels and finish these separations into the forms best liked. Generally, we have little influence on the molding of the preferences of the consuming public. We must strain ourselves to please many different groups. The largest part of the public likes pure white flour but I am sure that if it showed a preference for black flour, we would find a way of making it and we would be proud of its blackness.

As in other industries, the work in the milling industries consists of sales, marketing and manufacturing. The manufacturing further consists of the following elements: Products, raw materials, capital (equipment), labor, power, and technologic knowledge. It is revealing to survey these different fields for a need for more facts and knowledge for efficiency and perfection.

I must admit that my knowledge of the problems of sales and management is very rudimentary. Knowing the importance of reports and statistical data of different federal and state departments, the special trade organizations, Boards of Trade and especially the Millers National Federation, I cannot imagine but that mill executives can receive immediately all the information they want, without further research, about sales and management.

In marketing and packaging we have witnessed some interesting developments lately. Considerable research is incorporated in the groundwork for the federal pure food laws, the standards definitions promulgated for milling products, the standardization of package and container sizes. There is a great deal of room for further standardization, although the prevalent opinion is that it is undesirable from the viewpoint of the millers.

FLOUR PACKAGING PRESENTS CHALLENGE

We have seen new types of flour packages, multiwall bags and compressed sacks, for instance, appear to fill the war's special needs and no doubt others will also appear to help reduce and control infestation and spoilage and increase ease of handling and shipping. For new development work, some persons state, the packaging and handling of flour presents a challenge. There are those who argue that flour could be shipped in bulk, stored under optimum conditions and family flour packaged at the detail distribution point.

A part of the immense sum of money and energy spent on products control in the milling industry goes into products research. Large mill laboratories and federal and state agencies work with cereal products. Some new discoveries come from the search for ways and means to bring cereals to the consumer in a ready-to-use condition. Then, too, it is possible to mill in a special way to fit certain purposes better. The production of Canada Approved flour is an example of special milling. We may add or subtract from the natural components of the flour and feed. Perhaps we can find some new methods of changing these components and also of adding new ones.

To have a good foundation and guide for future possibilities, there is a great need for more and thorough basic nutritional research. It is possible to find some new industrial uses for cereal products. We all are convinced that enrichment of flour improved it nutritionally and increased its sales appeal. There must be other achievements along the same line.

CONTRIBUTIONS OF PLANT RESEARCHERS

There is a very intensive research program going on which seeks to improve our raw material—wheat. The importance of good grains cannot be overemphasized. Milling laboratories, trade associations, federal and state agricultural experiment stations, make crop surveys and conduct wheat improvement research. The improvement of the agronomic characteristics of wheat has been of much value to the farmers through increased yields, resistance to disease, etc., of the leading wheat varieties. Millers, too, have benefited from the introduction of many of the new varieties for there has been an increasing realization on the part of plant breeders that to satisfy the desires of the farmers only is not enough. Wheat is an industrial good, also, and its characteristics in industry have been considered.

There is work to be done by the millers, however, to bring out the factors which affect milling qualities of grain. Millers would like to bring the federal grain standard classifications in line with the true industrial value—milling quality—of the wheat sample. Millers wish that No. 1 wheat would always be superior in milling characteristics to No. 2 wheat. This, it is believed, would help wheat trade immensely.

OUR attention has been directed toward labor in the present critical times. We face labor now as heavy industries did 10 to 20 years ago. A good man is more a definite asset to his employer and a poor one is more a liability, especially since the increase of fixed operating charges such as social security, taxes, pensions, compensation, insurance, bonuses, and other features of benefit to labor have been introduced. To these add the closed shop and plant seniority.

Some enterprising personnel manager should devise an aptitude test to determine which persons have a natural ability to develop into good millers. We hear discussions in these days of the need of an educational program for training millers. Perhaps that should be investigated.

SHOULD STUDY WORKING CONDITIONS

A program of research dealing with working conditions may be needed for the milling industry. A little work on health hazards in flour mills will show to many old timers that, contrary to their opinions, milling is not an occupation hazardous to one's health. Such statistics could be shown insurance companies, courts, etc., and to the employees also, with some recommendations regarding their work habits. For example, some say that arch supports are a "must" item for operatives. No one seems to know for sure, however.

Engine and electric motor manufacturers have done much within recent years to improve their products. The new gas turbine is developed to almost the practical stage. These developments open new vistas of cheap power for mills near the oil and gas fields.

(Continued on page 24a.)

ANIMAL AND VEGETABLE PROTEINS

★ ★ By ★ ★

Lyman Peck

The author of this discussion of the relative merits of animal and vegetable proteins is chairman of the nutrition committee of the American Feed Manufacturers Association. The article is the manuscript of an address given by Mr. Peck before the Pennsylvania Poultry Association at its recent meeting.

IN order to clarify the discussion on the relative merits of animal and vegetable proteins, I think we should first understand what these terms really mean.

"Animal protein" as the term is ordinarily used, refers to a combination of vitamins, minerals, and amino acids. These amino acids in combination constitute what is generally referred to as protein.

In so far as poultry rations are concerned, "animal protein" refers to meat scraps, fish meal, liver meal and milk products. It is exceedingly important in the consideration of this subject to recognize that these animal products also contain vitamins and minerals in addition to proteins.

Proteins of vegetable origin also contain the same amino acids found in proteins of animal origin, but much less of certain essential minerals and some, but by no means all, of the B complex vitamins.

H. H. Mitchell in a recent report of the National Research Council states, "Amino acid analysis does not reveal any qualitative differences between animal and vegetable proteins as they occur in mixtures in animal and vegetable feeds. The essential amino acids are found in both classes of feeds and no general statements can be made concerning the proportions of constituent amino acids that will sharply distinguish one group of proteins from the other."

A great deal of experimental data has been reported by many investigators indicating the superiority of proteins of animal origin over those of vegetable origin. Much of this data must now be discarded because we know that proper consideration was not given to equalizing the vitamin and mineral content of the experimental rations. This does not constitute a reason for criticizing those who did this work. At that time very little was known about the B complex vitamins. Mr. Mitchell further states, "The opinion that animal protein is an essential constituent of the ration seems to be more prevalent and more firmly held with reference to poultry than with reference to any other class of livestock. However, there is considerable body of evidence indicating that the opinion is not well founded." . . . "Available evidence is quite inadequate to justify any general statement of the relative occurrence of these amino acids in animal and vegetable proteins, but it does not indicate any sharp distinction between the two."

H. J. Almquist found: "Heated soybean protein is slightly deficient in methionine for the chick at the 20% protein level, but is complete in respect to all other amino acids required by the chick." Experimental evidence indicates that some amino acid supplementation is necessary for optimum results in poultry breeding rations.

A careful study of the literature reveals that the first actual experiments comparing soybean oil meal and meat scraps in poultry rations were reported by A. G. Phillips, R. H. Carr and D. C. Kennard in 1920; and A. B. Hepburn and R. C. Holder in 1921. The following year D. C. Kennard, R. C. Holder and P. S. White also reported on this. This early work indicated that soybean oil meal with added minerals was equal to meat scraps in the type of rations employed by these investigators.

These investigations which started 24 years ago were the beginning of our present knowledge, not only of animal and vegetable proteins, but also gave impetus to the study of the mineral requirements of poultry of which little was known at that time.

During the past few years, a great many experiments have been conducted comparing proteins from both animal and vegetable sources in poultry rations. For those who wish to study this subject, the work of Almquist and his associates at the University of California; Bethke et al at Ohio Agricultural Experiment Station; Bird and Graschke of the University of Maryland; Briggs, Mills, Elvehjem and Hart at the University of Wisconsin; Hayward, Halpin, Holmes, Bohstedt and Hart at the University of Wisconsin; Carrick at Purdue University; Christiansen, Deobald, Halpin and Hart at Wisconsin; Heiman, Carver and Cook at the University of Washington; Irwin and Kempster, Missouri Agricultural Experiment Station; Wilgus, Norris and Heuser at Cornell; is a veritable mine of information. Dr. Boucher and his associates at Pennsylvania State College have been doing a lot of work with poultry along this same line, and I understand that their results will be published shortly. I have seen some of this data, and I am sure it will contribute much to the knowledge of this subject.

Many of these same investigators have also investigated the vitamin B complex requirements of poultry, and this work has been of great assistance in clarifying the problem of comparing animal and vegetable proteins.

During this war emergency when it has been necessary to reduce the amount of protein of animal origin in poultry rations, the work of these investigators has furnished the knowledge necessary to reformulate poultry rations. The fact is, this experimental evidence has made it possible to make rations containing very small amounts of protein of animal origin and large amounts of vegetable

(Continued on page 20a.)

★ MILLERS TAKE A BOAT RIDE ★

The allied trades party at the St. Louis convention of the Association of Operative Millers June 5-9 was a ride on the pleasure boat, S. S. Admiral. The pictures shown above were taken during the course of the cruise on the Mississippi River. The picture in the upper left shows a group of men from the Colorado Milling & Elevator Co. plants. The men are Arthur Ackels, Jack Fisher, James Mefford, D. C. Beebe, John A. Nolf, and Charles Brumitt.

The center picture shows Mr. and Mrs. Dale Goodrick of the Goodlander Milling Company, Fort Scott, Kansas, (standing) with Mr. and Mrs. P. H. Lawson, Kansas Flour Mills Co., Kansas City. Mr. and Mrs. C. O. Spencer, General Mills, Inc., Minneapolis, are shown chatting with Warren F. Keller, B. A. Eckhart Milling Co., Chicago, in the upper right picture. The left center picture shows Mr. and Mrs. Tibor Rozsa, Ismert-Hincke Milling Co., Topeka, Kansas, carrying on a conversation at their luncheon table. The two men in the center picture are Roger Pratt, Wallace & Tiernan Co., Inc., Kansas City, and Ben Johnson of the Crete (Neb.) Mills. Howard Waldron, Sprout-Waldron Co., Muncy, Pa., (right) evidently believes that William Sewell, Strong-Scott Mfg. Co., Minneapolis, cannot read.

In the lower row, the first picture is of Foster Mann, machinery dealer of St. Louis, and his grandson, George Strecker, eating lunch aboard the boat. The center picture shows Doug Boyer, master of ceremonies at the prize-drawing, awarding a prize to Mrs. John R. Heller and son Jack, of Schultz, Baujan & Co., Beardstown, Ill. The lower right picture is of George Tesarek, Quaker Oats Co., St. Joseph, and W. E. Norvell of the Nor-Vell Sieve Co., Kansas City.

BACK ON THE JOB

● Proper attention to all mill machinery at the time a mill is "set aside" pays big dividends for the Great Bend Milling Co.

This picture gives a good illustration of the fireproof character of the Great Bend mill—metal spouting, concrete floors, modern rolls. Some of the belting in this picture is new, but a great amount of well stored old belting was salvaged.

RECENT resumption of operation of the Moses mill at Great Bend, Kansas, after a shutdown of many years' duration, well illustrates how, with proper initial provision and care through the years, a fine, modern milling plant may be "set aside" and then restored to regular operation with a minimum of reconstruction and revision, especially in a time when materials are scarce and all construction work difficult.

The predecessor of the Moses mill was one of the pioneer mills of the great central Kansas milling field, Great Bend being one of the most important early-day milling towns, sharing importance with Hutchinson, Salina, Abilene and Newton. Its roots go deep into Kansas wheat growing and milling history, just as the Moses brothers, its original builders, for more than a quarter of a century were among the men who contributed so much to the growth of the industry in that state.

From the time its parent company was formed in 1878 to the present, when it is functioning as a modern, renovated plant under a new name, the Great Bend Milling Co. history has been what many business men think is the typical story of pioneer achievement in western United States.

Wheat was just getting a start in Barton County, Kansas, when Amasa Moses and his seven sons built their home there, dodged the roaming Indians, and shot buffalo on the plains.

Wheat was beginning to become important to that country in 1878 when one of the sons, Clayton, formed a partnership with R. C. Bailey and built an elevator beside the Santa Fe track. The wheat was bought in sacks, then stored until a carload was acquired and shipped to Kansas City or some other market. In 1892 this company bought another elevator at Pawnee Rock and one at Olmitz. Edward Moses then came into the firm and soon the brothers bought out Mr. Bailey. The company became Moses Brothers Grain Co.

Disaster first hit the company in 1898 when fire destroyed the Great Bend elevator. It was rebuilt in 1899. Two years later the brothers built a 350-bbl flour mill, changed the name to Moses Brothers Mill & Elevator Co., and fanned out through the wheat country with a chain of country elevators to supply their mill and keep them actively in the business of wheat merchandising.

The success of the mill venture is shown in the record that two years later the capacity of the plant was increased to 600 bbls daily. Five years later, in 1908, the mill was enlarged again, this time to 1,500 bbls. At that time C. L. Moses was president, E. W. Moses vice president and C. N. Moses secretary. L. E. Moses bought half the stock a year later and became president of the company. It was a flourishing business.

On Jan. 1, 1912, the company became a part of the Kansas Flour Mills Co. merger that united seven of the large Kansas mills, and L. E. Moses became president of the big corporation.

The Moses mill was destroyed about three years later when a tornado struck Great Bend and caused more than a million dollars' damage. It was the second time in 17 years that the Moses property was destroyed.

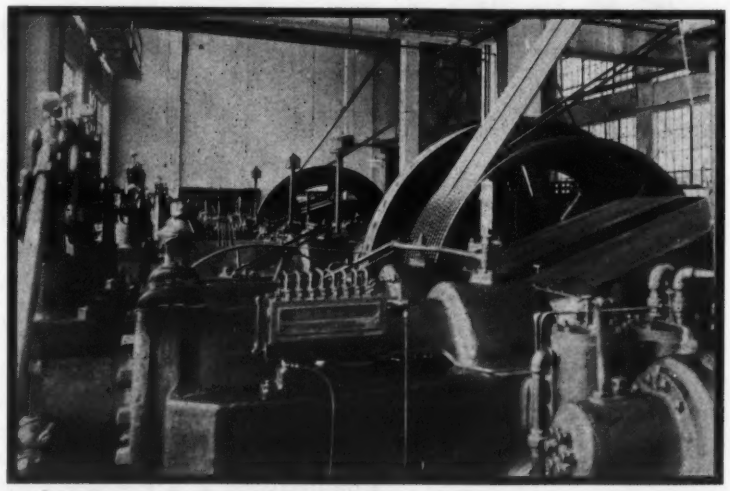
The frame and tar-paper Moses mill was then replaced with what was one of the finest flour mills in the West. Concrete and steel, fireproof, with metal spouting and modern equipment, the new mill was the showplace of the milling business in that section.

As flour production declined and large companies trimmed the edges of their operations, the fine mill at Great Bend was closed. Belts were carefully packed away, the machines coated in protecting grease and the diesel power equipment painstakingly protected. The management knew that some day flour would again be needed from the Moses mill.

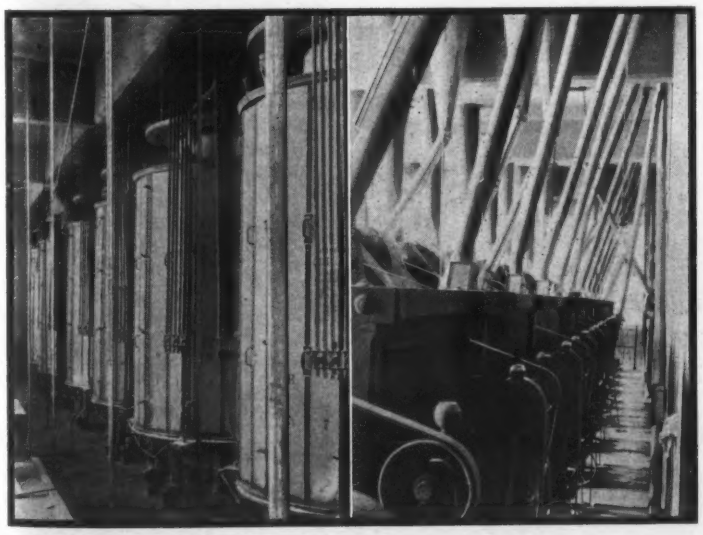
Last year that time came. Phil Lawson, dean of flour millers in the Southwest, went out to look over the Great Bend mill and knew at once that it would be ready to go back into efficient operation in a shorter time than most people believed possible. Diesel engineers told him that the big power plant was almost ready to go, and as he checked rolls, purifiers, sifters and elevators he knew that the careful job of preserving the equipment had paid big dividends.

With a minimum of labor, the mill was checked and cleaned from power to packer. Sacks, supplies, paint, light bulbs, silks, oil and a thousand other items flowed into the mill. Townspeople came out to look and tell each other that "the Moses mill is going to start up."

Last winter it started up. In a few days it was, as Phil Lawson calls it, in balance. He could hear it, see it and feel it in the flour. Coming from a man who knows mills, one knew what was meant when he said the other day, "It is a mighty good mill."



One of the really fascinating parts of the Great Bend mill is the engine room, where the men like to stop to watch the two great engines "play" with the big mill. The great rope drives seen in this picture are the original drives, installed more than 25 years ago.



Those who reconditioned the Great Bend mill thought that, after the plant had been idle for several years, several or all of the sifter hangers shown at the left would need to be replaced. Very few hangers, however, were brittle and unserviceable. This floor, with all sieves requiring attention, probably required as much time as any other floor of the mill.

The lineup of purifiers shown on the right again illustrates the virtually complete job of fireproofing done by the designers and builders. These wooden machines are probably the only machines in the mill that would burn.

The Effect of Rains on Mature Wheat

By Dr. C. O. Swanson

WEATHER conditions during harvest now have a pronounced effect upon the physical properties of wheat. Before the advent of the combined harvester-thresher, wheat could be cut with a header or binder when the moisture content of the grain was between 30 and 35%. The grain then was allowed to go through a curing period in the shock or the stack. The physical change that the grain underwent was merely a "drying out" to a moisture content of about 11%.

With the introduction of the combined harvester-thresher, it was found necessary to delay harvesting until the moisture content of the grain was 13-14% and preferably less. Wheat combined at a higher moisture content is liable to heat and become bin-burned.

Since the wheat must be left standing in the field for a much longer period because of the use of the combine, there are more chances of exposure to rains. The rains which fall on wheat after it has once become dry enough for the combine have serious effects on its physical properties. Rains which fall on wheat when it is in the hard dough stage (about 30% moisture) do not have any effect on the physical properties of the grain, therefore when it is cut at about that moisture content, and cured in the shock or stack, the grain will be fully developed and of normal hardness and color.

But when wheat has to remain in the field uncut until the moisture content is 13-14% and then is subjected to a soaking rain, marked changes do take place.

THE IMPORTANCE OF TEST WEIGHT

Test weight, external appearance and internal texture are the principal properties of wheat that are affected by the action of rain on standing wheat. Test weight is important because of its specification in the grain grades. To be graded No. 1, hard winter wheat must weigh 60 lbs or more per measured bushel. If the weight is between 59.9 and 58 lbs, the grade is No. 2. As the weight per measured bushel becomes less, the grade decreases. Therefore, if the test weight is lowered by exposure to rain from 60 lbs to below 58 lbs, the grade drops to No. 3.

A bushel measure, 2,150.42 cubic inches, will hold 77.69 lbs of water. Wheat substance, volume for volume, is heavier than water. One cubic centimeter hard wheat pressed into a solid weighs near 1.42 grams. This varies among different wheats, but it means that in comparing equal volumes of solid hard wheat and water, the wheat weighs 1.42 times as much as water. Therefore a bushel of wheat pressed into a solid would weigh 77.69 × 1.42 or 110.32 lbs. But wheat does not pack solid since a measured bushel full of No. 1 wheat weighs 60 lbs. This means that about two fifths of the space surrounding the wheat in the test kettle is air. The practical application of this is that the way wheat packs in the test kettle has a marked influence on test weight. Short round kernels pack more closely, hence the test weight of such wheat is notably higher than of wheat whose kernels are long and slender.

The condition of the bran coat also influences the way wheat will pack in the test kettle. Wheat kernels which are smooth will slide on each other easier and so arrange themselves in a more compact relationship than kernels whose bran coats are more rough. Hence factors which influence the condition of the bran coat will also influence test weight.

CHANGE IN INTERNAL TEXTURE

The condition of the bran coat is influenced by the weather which prevails after the kernels have become dry enough for combine harvesting. This is one reason why the harvest weather conditions have an influence on the test weight of wheat. The other important factor is the change in internal texture.

Some kernels of hard wheat when cut in halves will show a vitreous appearance of the interior. Other kernels will show a mealy or floury appearance. In between these two there are all gradations. This appearance of the interior of the kernels is determined by the closeness of packing of the starch granules and the protein material. There is also internal air space in wheat. The starch granules and the protein material are not packed absolutely solid. Calculation on the basis of the density of the various substances in wheat will show that the specific gravity of the solid matter in wheat would be near 1.490. This means that if wheat has a specific gravity of 1.420 there must be some air space, and if the specific gravity is 1.360, the air space is considerably greater.

Kernels from soft wheat varieties usually have a mealy interior. Kernels of hard wheat varieties, when grown under more humid conditions, may also have mealy interiors. Hard wheat kernels with mealy interiors also lack the external vitreous appearance, the bran coat being yellow instead of brown or reddish brown. Hence such wheat is known as "yellow berry."

THE CAUSE OF MEALINESS

This mealy interior is produced in hard vitreous wheat when it is wetted by rain after it has dried enough to permit combine harvesting and the condition is caused by a swelling of the kernels. The water enters the interior of the kernel and loosens the starch granules and protein material. When the wheat is redried, the starch granules and protein material do not return to their original compact positions, resulting in air spaces or vacuoles scattered throughout the endosperm.

Milling and baking tests with wheat

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that has been rained on while standing in the field have shown that this change in the physical properties as a result of the rain does not detract from the real value of the wheat for milling and baking. Evidence of damage to the utility value of wheat was found only in samples that had remained wet long enough to permit germination or to permit the development of mold.

Hard winter wheat is bought and sold on the basis of a 60-lb bushel regardless of whether it requires more or less than 60 pounds of the wheat to fill a bushel by volume. If 60 lbs of a 57-lb wheat was put in a bushel measure, there would be 3 lbs left over after filling the measure. Likewise, if 62-lb wheat was used, 60 lbs would not fill the measure.

GRADING STANDARDS LACKING?

There is something inconsistent or illogical in our present grain grading standards in using the weight per measured bushel—a volume basis—as a grading factor, and then sell the grain in units of 60 lbs—a weight basis.

For several years past the Kansas Agricultural Experiment Station has conducted research on the influence of weather during harvest upon the quality of the wheat harvested. Chief attention has been given to the effect of rain upon test weight and changes in internal structure and the effects upon flour yield and flour ash. The effect of rain upon the baking quality of the flour milled from the wheat also has been studied.

The results of two tests, selected from a series conducted during the past several years, are reported here. In one test, the grain was artificially wetted in the laboratory. The second report shows the results of field exposure to moisture.

In the summer of 1940 no rain fell from the time wheat was in the hard dough stage until after harvest. This was, therefore, a dry harvest and it was easy to obtain wheat which had not been wetted after it was once dry. A few bushels of Tenmarq wheat which had not been wetted was used for the experiments to determine what happens to the physical properties when wheat is wetted to various moisture percentages and then dried. The moisture content of this wheat was 10.3% and the test weight 61.3 lbs. In each of several gallon bottles were placed 4 lbs of this wheat. On the basis of the known moisture content, calculations were made to determine how much water should be added to each bottle in order that the wheat samples should have the desired moisture percentages. After complete absorption the wheat was exposed to the dry laboratory air in shallow paper boxes until all the added moisture had evaporated.

The percentages of moisture to which the samples were wetted, test weights, percentages of flour, ash and internal texture are given in table 1. The test weights on the redried samples were determined by the official method. The redried samples were tempered to 16% and milled on a Buhler mill with constant roll setting. The internal texture counts were made by using a barley kernel cutter which cuts 50 kernels at once so that the interiors of the kernels are exposed. Those which were all vitreous were counted as such and, likewise, those which were all mealy were similarly counted. In between these were various gradations from those which were nearly all vitreous to those which were nearly all mealy. These were counted as semi-vitreous.

TABLE 1

Effects upon test weight and flour yield of wetting wheat grain to various percentages:

Moisture after wetting, %	Test weight, lbs	Total flour, %	Ash content, %
10.3	61.3	73.9	.43
12	60.1	73.2	.43
16	58.1	73.0	.40
20	57.3	76.1	.42
24	56.8	73.5	.43
28	56.5	73.6	.43

RESULTS OF ARTIFICIAL WETTING

The figures for test weights in table 1 show a steady decrease as the amounts of wetting were increased. The most notable decreases occurred with the smaller amounts of wetting. Beyond the 24% wetting there were practically no further decreases. This indicates that even small rains may markedly decrease the test weights and also that heavy rains may not make much greater changes than small rains.

The flour yields did not decrease as the test weights were lowered. In fact, the flour yields and the ash percentages were as constant as if all the millings had been made from the same lot of wheat. It should be remembered that the flour yields were calculated on the basis of the weights milled and not on the volume basis.

The internal texture percentages show a decrease in the vitreous condition and an increase in the mealy and semi-vitreous conditions as the amounts of wetting were made larger.

Thus wetting these samples even up to 24 and 28% did not decrease the milling value as far as determined on these samples. Baking tests also showed no injury from the wetting. It should be remembered that the period during which these samples remained wet was con-

★ IT'S AN OLD AMERICAN CUSTOM ★

The BARBECUE

Hot dog stands on every roadway should be a reminder to us that our forefathers also knew how to enjoy a snack. The barbecue really originated in the South, and the whole countryside occasionally would gather at the Manor House to enjoy roast suckling pig and many another delicacy. Good eating has always been part of the American Tradition and the miller has played a large part in keeping our tables both full and tempting.

Swiss Silk has stood behind the American miller, helping him turn out the flour that has won for him a world-wide reputation for producing overwhelming quantities of highest quality products in minimum time requirements. Swiss Silk has always done its part efficiently and economically. It pays to . . .

Specify "SWISS SILK"

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trolled and no moulding or sprouting occurred.

NUMBER AND AMOUNT OF ARTIFICIAL WETTINGS

Rains do not fall with any regularity. Some are heavy, some are light, some fall in short period, others are drizzles lasting for hours or even days. An experiment was performed to determine the effects of wetting to various percentages as well as the effects of drying between each wetting.

TABLE 2

Effects on test weight, flour yield and ash of varying the amounts and times of wetting wheat grain:

Moisture after wetting %	Test weight, lbs	Flour yield, %	Ash content, %
11	59.8	69.3	.48
14	56.8	70.7	.48
14, 17	55.5	70.8	.49
14-26	53.1	73.1	.56
26	53.9	71.0	.51
26-17	53.6	70.6	.52

One set of samples was wetted at increasing amounts starting with 14% and at 3% intervals up to 26%. Another set of samples was wetted at decreasing amounts starting at 26% and down to 14% at 3% intervals. Selected data obtained on these samples are given in table 2. Increasing the moisture from 11% to 14% decreased the test weight 3 lbs, but another wetting at 17% made a decrease of 1.3 lbs. Wetting three times more at 20, 23 and 26% made a further decrease of 2.4 lbs. The total decrease in test weight caused by five wettings, drying between each one, was 6.7 lbs, but nearly half of that was caused by the first wetting which increased the moisture from 11% to 14%.

In the other set of samples, the first wetting was enough to make the moisture content 26%. Nearly the maximum amount of decrease in test weight was obtained in the first wetting. Subsequent wettings to 23, 20 and 17%, drying between each, made only a further decrease of 0.3 lb. The internal texture percentages show a different trend. The smaller wettings, 14% and 17%, had no notable effect on the internal texture. These smaller wettings did not swell the kernels sufficiently to disturb the internal structure. When the wettings were 26% the per cent of vitreous kernels decreased from 95% to 12% and the mealy increased from 3% to 35%. However, the one first wetted to 26% produced almost as much change as the three subsequent wettings at 23%, 20% and 17%. That is, when the maximum swelling has once occurred, subsequent wettings have little or no further effect.

The data in table 3 do not show any definite trend in the flour yield. The ash percentages indicate that the wettings up to 26% made the bran coats more brittle than the smaller wettings.

TABLE 3

Effects of small rains on test weight, flour yield and flour ash:

Sample number	Test weight, lbs	Flour yield, %	Flour ash, %
1 Bh	64.0	70.0	.40
2 Bh	63.2	73.0	.42
3 Bh	58.9	71.0	.39
1 Tq	58.7	72.2	.47
2 Tq	58.6	71.6	.47
3 Tq	55.5	74.0	.45

Note: "Bh" indicates Blackhull. "Tq" indicates Tenmarq. 1 Bh had no rain, 2 Bh had two rains totaling 0.23 inch and 3 Bh had five rains totaling 0.98 inch. The No. 3 Tq sample had received three rains totaling 0.75 inch. Both No. 3 samples were bleached.

RESULTS FROM FIELD EXPOSURE

We will next consider the results from samples taken in the field after exposure to various rains. Samples were taken during the summer of 1941. The general plan was to start cutting samples in the soft to hard dough stage and continue for about four weeks. On these samples were then determined test weight, flour yield and internal texture. Representative samples were also baked.

EFFECT OF EXPOSURE TO LIGHT RAINS

The 1941 wheat harvest season was moderately dry at Manhattan. Before the wheat was ripe, rains were of almost daily occurrence. Six rains from June 1 to 10 totaled 3.86 inches. The first cutting of Early Blackhull was made June 11, and from that date until late in July, only 0.98 inch fell in five small rains. The changes observed in the samples cut at various times during the harvest season of 1941 were therefore the results of exposure to small rains, dews and sunshine.

The data on test weights, percentages of flour, ash and internal texture from representative samples of Early Blackhull and Kanred are given in table 3. The observed condition of the grain, such as hard dough, hard and bleached, at the different dates of cutting is also given as well as the amount of rain to which the samples were exposed after the hard dough stage. The total decrease in test weight for Early Blackhull was 5.1 lbs. The two small rains totaling 0.23 inch which fell in the next few days after the first cutting decreased the test weight only 0.8 lb. The subsequent decrease of 4.3 lbs for the wheat cut July 14 was probably caused partly by exposure to dews and sunshine, as well as the three additional rains totaling 0.75 inch. The total decrease in test weight for Kanred exposed to three rains totaling 0.75 inch was not quite as large for Early Blackhull. There was practically no decrease between the first and second cutting when no rain had fallen.

Too many Fumigation *Survivors?*

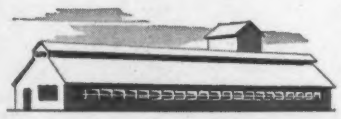
Fumigation survivors mean trouble—trouble and expense for the mill owner. Early reinfestation is probable if a "complete kill" is not obtained. And recent studies indicate that survivors are generally the *main source of reinfestation*—rather than through the grain stream.

The answer is to use a fumigant that will penetrate into every hiding place . . . into all the stock . . . bags . . . packages . . . machinery . . . wall crevices, for without penetration, you don't get fumigation.

METHYL BROMIDE

Regardless of the task—whether a general fumigation of the plant or a "spot" fumigation of incoming supplies—Dow Methyl Bromide "gets 'em all." That is why its use is so frequently specified by leading concerns.

The secret of Methyl Bromide's effectiveness lies in its unmatched power of penetration. All fumigants are poison to insects they reach. But only Methyl Bromide has the penetrating power to track down infestation in every nook and cranny of the plant. This ability to penetrate—resulting from its rapid rate of diffusion and low absorption—even carries Methyl Bromide to the center of large stacks of packages or filled bags. In fact, during actual tests, Methyl Bromide accomplished a complete kill of insects which had been placed in small capsules and buried in the very center of 140-lb. bags.



The penetrating power of Methyl Bromide is equally important in a general fumigation and in guarding against new arrivals. Both jobs must be done completely and thoroughly if reinfestation is to be prevented.

And Methyl Bromide does more than rid the mill of the immediate enemy . . . it also attacks potential recruits because it is highly toxic to insects in all stages. Its effectiveness against eggs affords further protection against an early reoccurrence of infestation.

Because of its great pene-

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The flour percentages, within experimental limits, were as large from the samples which had decreased in test weights, due to exposure, as from the samples cut in the hard dough stage. The ash figures show that the milling was fairly uniform.

Early Blackhull showed the greatest increase in the mealy condition of the endosperm and the greater decrease in the vitreous. While the increase in the percentage of mealy kernels was small, the decrease in the number of vitreous kernels was notable. It shows that Kanred was more resistant to changes due to exposure than was the Early Blackhull variety.

Tenmarq, Blackhull and Chiefkan were also included in this study. The changes in these varieties were similar to those obtained from Kanred and Early Blackhull. Chiefkan was more resistant to exposure than was either Tenmarq or Blackhull.

Baking tests on representative samples included in the studies did not reveal any deterioration from exposure to heavy rains. The loaf volumes and loaf textures were as good from the samples that had been subjected to rains as were the volumes and textures of loaves made from flours whose wheats had not been subjected to rain.

The data obtained in these tests have shown that important changes in physical properties take place when wheat is wetted by rain after it is once dried. The test weight is lowered, the exteriors of the wheat kernels become a dull yellow in color and the endosperm is changed from a vitreous to a mealy condition.

These changes do not, however, bring about any decrease in the flour yield, or impair the flour quality.

Editor's Note.—The above article was adapted from a paper presented by Dr. Swanson at the joint meeting of Districts 1 and 2, Association of Operative Millers, and the Kansas City, Pioneer and Nebraska Sections of the American Association of Cereal Chemists, held at Manhattan, Kansas, March 31 and April 1, 1944.

——BREAD IS THE STAFF OF LIFE——

Miller's Lowly Status in Feudal Times

In feudal times, the miller was little, if at all, raised above the status of the slave who sat behind the mill of Pharaoh. Small wonder was it that for centuries the art of milling lay stagnant and that feudal mills of the sixteenth and seventeenth centuries were in no single degree, except possibly in size, superior to the mills that ground for Rome in the days of the Cæsars.

In the conduct of his trade, the miller was bound down on every hand by restrictions, for infraction of which every villager knew he was liable to severe punishment. The amount of his toll was fixed; the time allowed for grinding determined.

The mill was to be kept continuously at work, if possible. The number of his servants and their work were regulated, if the local authorities permitted him to have any.

Among his neighbors he was socially one of the lowest. At the manorial church the humblest seat was assigned to his wife; and he himself was regarded with popular suspicion and distrust as a proverbial pilferer of grist.

From the time of Chaucer, who averred of the miller that

> Well could he stealen and tollen thrice,

the craft was associated in the public mind with dishonesty.

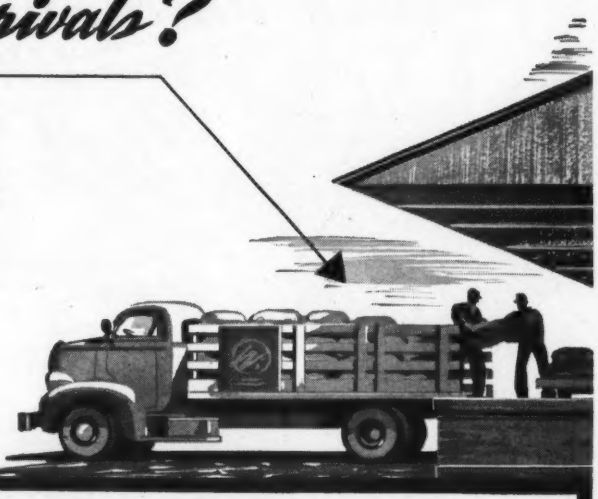
A Picardy story recounts that it was from the top of a windmill that on Ascension Day Christ soared upward to Heaven. The miller, looking through a window, and seeing Him climbing up the rungs of the sail-yards, calls, "Ho, la! Where are you going?" "I go to Heaven," was the reply. "In that case," cries the miller, rushing out, "wait for me; I'm going with you." "Not so," says the Christ, "you are going in the other direction."

In Brittany a long story relates the arrival of a dusty miller at the gate of Paradise, where he is confronted by St. Peter. "Don't you know," says the latter, "that a miller never did and never shall enter here?" The man of flour replied that he was aware of that, and only desired to look in and see how beautiful a place it was before he took his departure for another place. Peter, therefore, opened the door a little way; but the miller, who had his bushel measure with him, thrust it in and broke open the door, immediately precipitating himself inside and sitting down on the measure. It was in vain that they tried to eject him; he declared that he rested on his own property, and there he would stay. As there seems to have been no answer to this, he was the first miller to enter Paradise.

Colloquialisms of another character are equally abundant. "What is the boldest thing in the world? A miller's shirt, for it clasps a thief by the throat daily."

"What's the boldest animal in the world? The miller's ass; it lives among thieves and has no fear."

Or too many new *Arrivals?*



The battle against infestation is never-ending. After a complete and effective fumigation, there is still a job to do—the infiltration of new arrivals must be prevented if early reinfestation is to be avoided. Incoming products and equipment must be fumigated thoroughly and carefully before being brought into the plant.

This can be done—and done easily—by using a fumigant that will penetrate to the very center of all incoming shipments.

→ → GETS 'EM ALL!

trating power, the amount of Dow Methyl Bromide required is relatively small. The fumigating cost is, therefore, remarkably low. Very little equipment is necessary, although it is important to use electric fans. Methyl Bromide is heavier than air and will stratify near the floor unless mixed into the air by the fans for about thirty minutes.

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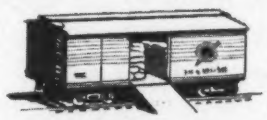
TARPAULIN
The use of Methyl Bromide with a plastic-treated tarpaulin gives you the advantages of a portable fumigation chamber—for use in or out of the building.



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Incoming box cars can be effectively fumigated with Methyl Bromide from the outside and made insect-free before unloading.

FUMIGATION CHAMBER
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CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

Flour Enrichment and Human Nutrition

★ ★ **By W. B. Holmes, Jr., Merck & Co.** ★ ★

VITAMINS and flour enrichment is a broad subject and a comparatively new one, but we are all familiar with the rapid progress that has been made during its short existence of approximately three years. Its scope has been broadened to include, through Food Distribution Order No. 1, Amendment No. 5, all yeast-raised products and all doughnuts, crullers and fried cakes to the extent white flour is used, beginning May 1, 1944. To date, four southern states have enacted legislation that requires that all flour offered for sale must be enriched and this procedure of state legislation has the endorsement of the Millers National Federation. Two southern states have enacted laws dealing with enrichment of all degerminated corn products sold within their state boundaries but enforcement of these laws has been postponed.

I think it appropriate to outline briefly the reason for enrichment of flour and other cereal products.

VITAMINS ARE CHEMICAL SUBSTANCES

Vitamins are distinct chemical substances known to be essential to all animal life, and as one authority has put it, "They are something that will make you sick if you don't eat them." The existence of vitamins became apparent, paradoxically, from their absence, rather than their presence. For example, the disease beriberi, long known in the Orient, was traced to groups of people whose diet contained polished rice. But it was only 30 years ago that beriberi was established as a dietary deficiency disease. Scurvy was effectively combatted by the use of limes in the British Navy long before vitamin C, as such, was known. You are all familiar with the children's disease, rickets, another deficiency disease, which may occur as the result of an inadequate intake of vitamin D and/or the mineral calcium.

I shall outline briefly the functions of the vitamins that make up enriched flour, namely, vitamin B_1, riboflavin, niacin and also iron.

Vitamin B_1 (or thiamine hydrochloride) promotes growth, and is esssential for utilization of carbohydrate foods, helps maintain appetite, aids digestive functions, combats constipation of dietary origin due to lack of vitamin B_1, and is needed in greater quantity during pregnancy and lactation. It is a specific for beriberi, is useful in treating certain cases of mental and nervous disorders. Necessary for optimal muscular work and to help forestall fatigue.

Riboflavin promotes growth, helps protect against eye disorders, such as inflammation of the cornea, dimness of vision in poor light, and is a part of the important oxidation-reduction system in human cells. Riboflavin deficiency is recognized by the appearance of fissures and cracks in the angles of the mouth.

Niacin is recognized as a specific prevention and treatment of pellagra, although, in pellagra, there may be multiple deficiency, involving other members of the B group.

Iron helps in the maintenance of normal red blood cells and in preventing anemia.

Dietary studies have shown that many persons, in ordinary walks of life, residing in the United States and other parts of the world, may not obtain from ordinary diets truly adequate amounts of these vitamins for robust health. The need of these vitamins was recognized by scientists, the milling industry, and the government when standards for enriched flour were proposed at the flour hearings in 1940.

The first standards for enriched flour required per pound the content of 1.66 milligrams thiamine, 6.15 milligrams niacin and 6.15 milligrams iron. At that time the cost approximated 30c bbl for ingredients. By the time the new standards became effective, Oct. 1, 1943, this

Slugger McTruck was tickled pink—but he wasn't too surprised—when he followed the conveyor belt back to the packing machines. He found that all along the line, his cloth bags are "teacher's pets". Packers, sewers and handlers all work faster and better when cloth bags are going through.

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cost had reduced to approximately 11c bbl. The revised standards which became effective Oct. 1, 1943, increased the content of thiamine from 1.66 milligrams per lb to 2, niacin from 6.15 milligrams to 16, iron from 6.15 milligrams to 13, and riboflavin, a new member of the family, is contained at a level of 1.2 milligrams per lb. When these new standards became effective, the cost of ingredients approximated 12½c per cwt flour; five months later, this cost was reduced to approximately 9c per cwt and the differential for enriched flour was set at 12c cwt.

The commonly used declaration to meet the labeling requirements for dietary foods is, in the case of enriched flour, as follows:

"Eight ounces of enriched flour contain not less than the following proportions of the minimum daily requirements of vitamin B_1, 100%; riboflavin, 30%; iron, 65%, and 8 milligrams of niacin."

The recommended declaration in the case of enriched self-rising flour is as follows: "Eight ounces of enriched self-rising flour contain not less than the following proportions of the minimum daily requirements of vitamin B_1, 100%; riboflavin, 30%; iron, 65%; calcium, 66%, and 8 milligrams of niacin."

This wording is different because enriched self-rising flour must contain 500 milligrams of calcium per lb in addition to the other enriching ingredients. Calcium at a level of 500 milligrams per lb was made optional in the case of plain flour. Also, vitamin D at a level of 250 USP per lb was made optional in both types of flour. The application of these enriching ingredients to the flour in the mill is usually accomplished by their addition to the flour stream through feeders; or by direct addition to a batch mixing operation. It is necsary that these materials be further bulked before addition to the flour. This can be accomplished in the mill by blending the necessary vitamins and iron with flour or some other suitable carrier; care should be taken to avoid the use of too coarse or too high moisture flour for the carrier—a dry, sharp flour has been found to possess the best feeding and mixing characteristics. Mixture of flour and phosphates, likewise have been found satisfactory. Suitable commercially prepared vitamin enrichment mixtures also may be purchased. Regarding commercially prepared mixtures, I quote the following advice issued by the Millers National Federation:

"The following recommendations as to the safety factor in enrichment premixes are made in behalf of the technical committee of the federation by Chairman Betty Sullivan:

"In July the technical committee published figures concerning the average allowances which could be made for the natural content of enriching ingredients in patent flour. Since that time it has been brought to our attention that some enrichment mixes are being offered for sale which are based on the full allowances for thiamine, riboflavin, niacin and iron, given in our previous report, but with inadequate provision for a margin of safety for some of the ingredients. Such pre-mixes would be satisfactory only if the miller provided for a reasonable safety factor, by a higher setting of his enrichment feeder or an increase in the amount weighed for batch-mixing.

"Since such a procedure is not usually followed, the technical committee recommends that enrichment concentrates, made or bought by the mills, include a safety factor for thiamine, riboflavin, niacin and iron of approxiamtely 10% to be added in mixing the ingredients. Each miller should, however, check the variations in flour to determine whether greater or less allowance is desirable. If a miller is using a batch mixer for mixing enriching ingredients, he should check to determine maximum errors in mixing. Based on the allowances previously cited for hard wheat flours, the amounts of each ingredient to be added per pound of patent flour with the 10% added tolerance, would be as follows:

	Mg per lb
Thiamine	1.8
Riboflavin	1.15
Niacin	13.7
Iron	11.0

"The customary practice of using around 10% more than the above suggested amounts of enrichment ingredients on patent soft wheat flours is, in our judgment, a sound policy. On straight grade, soft wheat flours, the same quantities as suggested above for hard wheat flours may be satisfactory. Clear flours require less added quantities than straights, but as the variation is wide with respect to grade and type, no general allowances can be safely recommended. Only individual assays will provide satisfactory information. Frequent checks of all enriched flour are advised. It is only by regular and systematic assays of both thiamine and

(Continued on page 18a.)

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Chemistry for the Operative Miller

By C. O. Swanson
Kansas State College

The Distribution of Wheat Constituents

FIVE constituents, ash, protein, fat, crude fiber and nitrogen-free extract, determined in a grain or feed represent groups of substances. Moisture is a single substance. What each constituent or group contains was briefly indicated in an article on nitrogen-free extract that appeared in this journal last month. What is the value of the percentage figures of substances or constituents in a feed or food? Data are lifeless and cold unless they are interpreted in terms of practical usage or application. One of the purposes of this article is to interpret data giving the analyses of wheat and mill products so that they shall have a meaning. First some actual figures.

PERCENTAGES OF CONSTITUENTS IN WHEAT AND MILL PRODUCTS

Table 1, prepared by the commodity development division, Northern Regional Laboratory, Peoria, Ill., gives the percentages of the various constituents in a commercial milling mix of hard red spring wheat, the percentages of the products obtained in milling and also the percentages of the constituents in these products. This is a rather high extraction since the sum of the percentages of all the flour streams is 75. If the red dog goes to the shorts, 73.7% is obtained as straight flour. The percentage of germ obtained is rather small considering that the average germ content of hard red spring wheat is 2.29% (Bailey, 1938). The 0.2% obtained indicates that most of the germ went into the shorts and the lower grades of flour.

VARIATION IN PERCENTAGES OF CONSTITUENTS

Protein.—This wheat mix was high in protein. Only the patent and first clear flours have a lower percentage of protein than the wheat itself. The 1.03% lower protein in patent flour as compared with the wheat is an average spread. The higher percentages of protein in the lower grades of flour and the feed products as compared with the wheat indicate that the inner bran layers and the outermost endosperm layers are considerably higher in protein content than the kernel as a whole. A sample of wheat peelings analyzed 4% protein showing that the outermost thin bran layers are low in this substance. The percentage of protein in the germ is twice that in the wheat. This protein in the germ serves as a source of material for building tissues in the leaves and the roots when germination takes place to form a new plant.

Fat and Ash.—Fat and ash follow the same general trend as the protein. The lowest percentages are found in the patent flour and then they increase in the bran and products from under and near the bran. The germ is highest in fat, but not in ash.

Starch.—Starch has a reverse trend from the protein, ash and fat. The patent flour has the highest starch percentage and both the 1st and 2nd clears have higher percentages of starch than the wheat. The germ and the bran are lowest in percentage of starch. The shorts have nearly twice as high percentage of starch as the bran but only half as high as the red dog flour. The inclusion of the latter in gray shorts, thus increases its starch content.

Sugar.—Sugar follows a trend opposite to that of the starch. The three flours, patent, 1st and 2nd clears, which may constitute straight flour have percentages of sugar lower than the wheat, but in the other streams the percentages of sugar are several times as much as in the wheat as a whole. The germ is by far the highest in sugar content.

The varying percentages of sugar in the different parts of the wheat grain were shown by Kretovitch (1933). The wheat kernels were divided into two parts: A, the germ end, 19.06%, and B, the brush end, 80.94%. The brush end was further divided into two portions: (1) the outer layer of the bran coat including the aleurone layer, 29.73%, and (2) the inner portion of the endosperm, 70.73%. The percentages of sugar (sucrose) were as follows (figures based on dry matter):

	A	B brush end	
	germ end	outer layer	inner portion
Percentages sugar (sucrose)	2.96	2.58	0.88

The sugar (sucrose) content of the whole grain was 1.62%, and reducing sugar only 0.04%. These figures help to explain why the sugar contents in the mill products have the trend shown by the data in Table 1.

The Remnants.—The last column in Table 1 gives the combined figures for the crude fiber, pentosans and the undetermined portion. The flours, except red dog, have the least of these substances and the bran and the shorts the most.

A tabulation showing percentages of composition does not give a complete picture. Those products which have such high percentages of protein, fat, ash and sugar constitute the relatively smaller proportions of the total wheat. Thus 2nd clear, red dog flour and shorts which have over 18% protein comprise but 12.9% of the mill products, while patent and 1st clear flours which are lower in percentage of protein comprise 70.5% of the total mill products. The patent and 1st clear flours are also lowest in percentage of ash, fat and sugar. On the basis of total quantities present, a different picture is presented.

The figures in Table 2 were calculated from those in Table 1 and give the quantities of the different constituents in the mill streams or products. The figures were obtained by multiplying the percentages of mill products in the first column by each of the percentages of constituents in the other columns. In order to have figures of only one decimal place these calculations were based on 1,000 lbs of wheat. Hence each one of the figures indicate so many pounds obtained in the various mill products from this amount of wheat. The weights of constituents for patent, 1st and 2nd clears were added to represent what would be present in straight or 73.7% extraction flour.

The upper line of figures in Table 2 show the distribution in the wheat. Starch is the largest constituent followed by protein. Together they include 68.3% of all the constituents.

Protein Distribution.—The data in Table 2 show that patent flour although lowest in percentage of protein contains about three fifths of all the protein in wheat, 3.4 times as much protein as the bran and 6 times as much as the shorts. The products, 1st and 2nd clears, red dog flour, and germ which have the highest percentages of protein contain only about one ninth of the total proteins in wheat.

Fat.—Patent flour which is lowest in fat percentage is next to the bran and above shorts in total amount present. The three streams which constitute straight flour have as much total fat as the bran.

Ash.—Of the total ash in wheat five sixths is found in the feed products. Only about one seventh of the total ash in the wheat goes into the patent flour. The two clears and the red dog flours which are high in ash percentage have together less than half as much total ash as the patent.

Sugar.—Of all the constituents, the bran has the highest amount of sugar, followed by patent flour and shorts. Thus, while patent flour has the lowest sugar percentage, nevertheless it contains nearly one third of the total sugar in the wheat. The germ which has the highest sugar percentage, accounts for only a small quantity. In the total germ the quantity would be about 10 times greater than the figure in Table 2.

The Remnants.—Crude fiber, the pentosans and the undetermined constituents are found mostly in the feed products. These carry four fifths of these constituents leaving only one fifth for the three flours which constitute the straight and comprise 73.7% of the extraction.

Starch.—The data in Table 2 show the large proportion of starch in the flours and the comparatively small amounts in the feed products. These latter contain only about one thirteenth of the starch in the wheat.

VARIATIONS IN FIGURES FOR STARCH

Methods for determining the various constituents in wheat are better standardized than for starch. Therefore reports on analyses for starch in wheat and flours show more variation in data than those for the other constituents. Stark, Kalachov and Wilkie (1943) report 72.3% starch as an average of two samples of soft white wheat whose protein contents were 7.3% and 8.7%. One sample of soft red winter wheat had 70.9% starch with a protein content of 14.1% and another sample which had 9.5% protein had 68.4% starch. Three hard red winter wheats averaged 65.8% starch and 13.2% protein. Three samples of hard red spring wheat averaged 61.2% starch and 15.3% protein. The above percentages are all on the dry basis.

The starch content of spring wheats is reported by Hopkins (1934) who gives the following starch percentages, using the polarimetric method:

	Mean starch content (13.5% moisture basis)
Hard spring wheat (Marquis)	51.88
Soft winter wheat (Dawson's Golden Chaff)	59.05
Flour from Marquis	68.06
Flour from soft wheat (Ben Hur)	71.09

The average starch content of seven grades of western Canadian wheat

Table 1. Percentages of Constituents in Wheat and Mill Products

		Chemical Constituents					
		Basis 13.5% Moisture					
Products	Milling yield of proportion of whole kernel %	Moisture at time of milling %	Protein n x 5.7 %	Fat %	Ash %	Starch %	Sugar %	Pentosans crude fiber & Undetermined %
Wheat (whole grain, tempered)	100	15.6*	15.28	1.81	1.85	53.0	2.61	11.92
Products thereupon								
Patent flour	65.3	13.8	14.25	0.91	0.42	66.7	1.25	2.97
First clear flour	5.3	12.5	15.19	1.43	0.65	63.1	1.37	4.84
Second clear flour	3.2	13.4	18.09	2.43	1.41	56.3	2.09	6.21
Red dog flour	1.3	12.0	18.54	3.79	2.71	41.4	4.60	15.44
Shorts	8.4	13.5	18.49	5.25	4.99	19.3	6.72	31.81
Bran	16.4	13.8	16.71	4.58	6.50	11.7	5.48	41.56
Germ	0.2	13.8	30.91	12.60	4.32	10.0	16.61	12.04

*Before tempering the moisture content of this wheat was 11.9%.

Table 2. Quantity Distribution of Constituents in Wheat and Mill Products

	—Pounds of Chemical Constituents in and from 1,000 lbs of Wheat—						
Products	Percent of kernel	Protein	Fat	Ash	Starch	Sugar	Pentosans, crude fiber & undetermined
Whole wheat	100	152.8	18.7	18.5	530.0	26.1	119.2
Products							
Patent flour	65.3	93.0	5.94	2.74	435.5	8.16	19.4
First clear	5.3	7.9	0.74	0.34	32.8	0.71	2.5
Second clear	3.2	5.8	0.78	0.45	18.0	0.67	2.0
Straight	73.8	106.7	7.46	3.53	486.3	9.54	23.9
Red dog	1.3	2.4	0.49	0.35	5.4	0.60	2.0
Shorts	8.4	15.5	4.41	4.19	16.2	5.64	26.7
Bran	16.4	27.4	7.51	10.66	19.2	8.99	68.2
Germ	0.2	0.6	0.25	0.09	0.2	0.33	0.2

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(Hopkins and Graham, 1935) was 51.46%, using the polarimetric method and calculating to the 13.5% moisture basis. The lowest figure was 50.13% and the highest 51.99%, giving a spread of only 1.86%. The starch content of wheats from the United States was reported as varying from 50% to 58.5%, 13.5% moisture basis. These were determined by the diastase method. Hopkins and Graham conclude from their work that there is no relationship between flour yield and starch content. They make the comment that flour yield depends more on the physical condition of the bran and resultant ease of separation from the endosperm than on the actual amount of endosperm.

FLOUR YIELD RELATED TO STARCH AND PROTEIN CONTENTS

The relationship of both starch and protein contents to flour yield was studied by Hopkins (1939). Determinations of starch and protein content were made on composite samples representing wheats passing through Winnipeg to eastern markets. From this study Hopkins concludes that there was a very close relationship between flour yield and the sum of the starch and the protein contents in these samples. The results of these analyses indicate, according to Hopkins, that it may be possible to predict the flour yield of new varieties by determining the starch and protein contents, using relatively small wheat samples. The constancy of the sums of starch and protein contents is shown in the following figures (13.5% moisture basis):

	Starch %	Protein %	Sum %
1. Northern (Marquis)	50.7	14.9	65.6
2. Northern (Marquis)	51.6	14.5	66.1
1. C. W. Garnet	55.1	11.4	66.5
2. C. W. Garnet	54.7	11.3	66.0

METHODS FOR STARCH DETERMINATION

Methods for determining starch are less standardized than are analytical methods for other substances. The methods for determining moisture, ash, protein, fat or ether extract, and crude fiber are standardized to such an extent that cereal chemists have no difficulty in duplicating each other's results on the same samples. For each of these constituents standard methods have been developed and are used. For starch there are not only several methods used, but the nature of starch makes it more difficult to separate the different carbohydrates. Some of the reagents used in the starch determination may, under some conditions, change one carbohydrate into another. Meticulous adherence to detail is therefore necessary in the determination of starch and the method used should be stated in the report.

An extensive study of analytical methods used for starch determination was made by Herd and Kent-Jones (1931). They place these methods in two groups: (1) hydrolytic and (2) nonhydrolytic. The hydrolytic methods are further separated into (a) acid hydrolysis and (b) enzyme hydrolysis. With the nonhydrolytic methods should be included the method which obtains starch by difference. In this method all the components or substances except starch are first determined and then their sum is subtracted from 100. The principle of this method is similar to that used for nitrogen-free extract. A crude and simple method is based on direct washing of starch from dough. In addition the polarimetric method used by Hopkins (1934) should be mentioned. The American Association of Agricultural Chemists and the American Association of Cereal Chemists recommend either the methods involving (1) direct acid hydrolysis or (2) treatment by a malt diastase followed by an acid hydrolysis.

The diversity of methods used by chemists in determining starch helps to explain the wide variations in data for the starch content of wheat and mill products. Wheats and mill products vary in their starch contents but direct comparisons cannot be made unless the methods for the determinations are taken into consideration.

EDITOR'S NOTE.—This article is the twelfth in the current series dealing with cereal chemistry for the operative miller, written for this journal by Dr. Swanson. The author is internationally recognized for his significant contributions to the field of cereal chemistry and is the recipient of the Osborne Medal Award, in recognition of those contributions. The thirteenth article in the series will be published in this journal next month.

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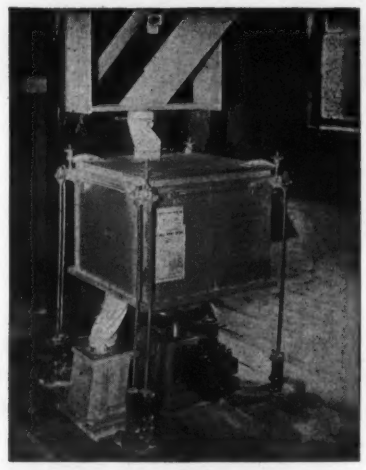

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Facts About Leather Belt Fasteners

* * * * * * * * *

The Type of Joint Used Affects Considerably the Efficiency and Life of a Belt

By W. F. Schaphorst

ALL leather belts are already full of joints when they come from the manufacturer, but they are so well cemented that they are seldom thought of as being joints. In making a belt endless, the joint should be made in the same manner as the joints already put in by the manufacturer. If he cements and rivets, the user should cement and rivet. If he depends on cement alone, the user should do likewise.

In order that belts may do their best they must be pliable, laterally as well as longitudinally. On account of the cylindrical shape of the pulleys, the belt must be pliable longitudinally so that it can wrap itself intimately about the pulley. Because of the crown of the pulley, the belt must be pliable laterally. Intimate contact of the belt with the pulley is the secret of sliplessness. If the belt must be pliable, then for good service the joints must be equally pliable. The endless belt is therefore best because it is equally pliable in every direction. Among its other advantages are: its smoothness of running; the absence of noise; the smaller danger of slip and of running off the pulleys as compared with jointed belts; and the smaller danger of waves if the belt is slack.

The best laced joint is that one which most nearly approaches the cemented joint. The ordinary rawhide-laced joint will not give as high an efficiency, because the use of rawhide lacing requires that a considerable portion of the belt itself be cut away to make room for the lacing. If 20% of the cross-section of the belt be removed for the lacing holes, the efficiency of the joint cannot in any event be higher than 80%. Furthermore, rawhide joints are bulky. Also, they are stiff. As they pass over the pulley, they raise a portion of the belt on each side of the joint from the pulley face and thus destroy the much desired intimate contact of belt with pulley. Rawhide joints are noisy, they cause slip, and they are particularly undesirable for use on small pulleys. With large pulleys, the character of the lacing is not so important as regards bulkiness and stiffness.

Neither will the wire or metal fastener joint give an efficiency of 100%. Some of the belt fibers are sure to be broken when the belt is pierced by the sharp metal teeth of the metal fastener or the punch for the wire lacing. The loss in strength is not so great as it is in the case of the rawhide lacing. Compared with the rawhide joint, the wire lacing is almost ideal, from the standpoint of strength of joint. As regards pliability, metal lacings are continually growing better. Many makes are pliable both longitudinally and laterally. The hinge joint is a good example of a highly pliable joint in the longitudinal direction. It is not so pliable in the lateral direction, but still it is pliable enough for most drives.

The above arguments seem to favor the wire-laced or metal fastener joint. The flexible metal joint is also favored by the following analysis of the cost of belting. If the efficiency of the three types of joints which have been considered are taken as 100% for an endless belt; 95% for a belt joined with a metal lacer or fastener; and 80% if rawhide lacing is used, the corresponding belt width for transmitting equal amounts of power will be necessary as follows: $1 \div 1 = 1$ for the endless belt; $1 \div 0.95 = 1.053$ for the metal laced belt; and $1 \div 0.80 = 1.25$ for the belt laced with rawhide.

For doing the same work, therefore, the relative cost of the belts with the three types of joints will be in proportion to the above figures. If endless belts will cost $1,000, then we will have to pay $1,053 for belts if we use metal lacing, and $1,250 if we use the rawhide joint.

While the belts with the cemented joints will cost $53 less than those with the metal lacing, it must be remembered that the cost of making the cemented joint is considerably higher than that of making the metal laced joint. If the belt is to be shortened at more or less

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greater intervals, as is often necessary, the facility with which this can be done with the metal laced joint renders it superior to the other as an all around proposition.

In estimating the cost of belting for the plant at $5,000, it is probable the average manufacturer would base his estimate on belts using rawhide lacing at the joints. That is the way it has always been done. But as the rawhide joint has only 80% efficiency, and as the metal laced joint has 95% efficiency, we could by basing the estimate on the metal lacing find that the belting would cost only

$$\frac{\$5{,}000 \times 1.053 = \$4{,}220}{1.250}$$

Thus fasteners, usually considered a small item, affect the result as much as $780 worth. As a rule belt costs are seldom figured in this way, but the process of reasoning just outlined shows that as a rule too little attention is given to the very important factor of belt lacing.

With the belt properly put up and the best type of joint in use, the next step is to see that the belt is kept in the best condition at all times. It must be kept from becoming hard and cracking, and must be made or kept waterproof. It must be kept from slipping; its useful life must be maintained as long as possible by relieving the initial tension whenever possible or by making initial tension unnecessary. A good belt dressing is an essential to these conditions. A belt dressing that temporarily prevents the belt from slipping is not necessarily a good dressing. While it may stop the slipping, it may contain ingredients that will be as helpful to the belt as a treatment with sulphuric acid.

The best advice that can be given regarding belt dressings is: Investigate. Apply the information to the belts in your own shop. Use belts that require little or no dressing.

The conditions under which any two belts work are seldom alike, so that it is difficult to give exact figures. But the same kind of logic applies to all belt drives, and in every case the little things and small details will be found to be just as important as the big detail of first cost.

Gristing Privilege Restored in Canada

Advices from Saskatchewan millers indicate that they were pleased with the decision of authorities at Ottawa to allow a much larger amount of gristing for farmers in the new crop year now open. It was always a sore spot with the country mills of that province that gristing had been cut down to the vanishing point. This practice has been followed by small neighborhood mills in every part of the world from time immemorial. It is one of the oldest of functions belonging to country flour mills. One of the very first things the king of France did when he began to make laws for the pioneer French settlers in Canada was to issue a decree making it compulsory for owners of flour mills to grind on a gristing basis all wheat which farmers might bring to mills for that purpose. No seignior could refuse the service and all were subject to fines and forfeitures in case of failure to carry out the requirements of this law.

As time went on gristing became universal in Canada and has remained so ever since. It is really a valuable service to those who grow wheat and at times has been almost a life-saver for the farmers of the Canadian West. During the '30's when money was the scarcest of all commodities there gristing became almost priceless as a service to farmers lucky enough to have some wheat on hand. Then the new war came along and in its wisdom the authority controlling foodstuffs felt compelled to limit the practice of gristing. In theory this regulation was legitimate, but it happened to conflict with a very old custom of millers and farmers and to outrage an ancient right of both.

To what extent the farmers and millers of the West will make use of their restored gristing privilege no one can be sure. Many will use it while others may not. All will depend on the individual circumstances. In any event the privilege is again theirs and the right of the common man to do what he likes with his own even during a war has been vindicated. This is another demonstration of the inherent instinct of British people for fair play. A. H. B.

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Milling 60 Years Ago

Importance of Proper Cleaning

By Louis H. Gibson

CLEANING of wheat and purification of middlings have in mind the same result. This statement might be turned around and read "purification of wheat and the cleaning of middlings." Custom and precedent are in favor of the first expression. Milling the wheat, properly speaking, may be said to begin with its reduction, its handling by the cleaning machinery being the preparation for the purification process. And it is clear to see that any impurities taken out previous to reduction renders the work of the separations infinitely easier than it could possibly be were this process deferred until after the reduction of the wheat. Purification of the wheat after it is reduced cannot but be an incomplete process. Only such particles as are of sufficient size and detached from the outer coverings of the grain can be pure or in a condition to be purified. The finer particles, or flour, are more or less intimately mixed with the portions deleterious to its bread making qualities. Therefore, any impurities taken out of the wheat previous to its reduction means more as applied to the final result than can any of the methods of purification which follow. Taking out of the impurities at the tail end of the mill always had an unnatural look to the writer.

The purity of the flour is dependent upon the proportional purity of the entire stock or conglomerate as it enters the reel, and not upon the quality of the distinct flour particles. By this is meant that there may be a small proportion of high grade of flour mixed with a larger portion of impurities or inferior flour. The quality of the flour that comes from the reel which bolts this stock is influenced only by the proportion of impurities, and not by the quality of flour stock which may be mixed therewith. The only effect which this high grade stock has is in reducing the proportion of deleterious material. It is well known that the lower grades of flour contain a proportion of the best stock in the wheat, together with a certain other proportion of the worst and poorest stock. As the quality of flour is rated by its weakest points, the result is apparent. Such a result is brought about by a method of milling which carries by far the largest portion of impurities through the mill, in the meanwhile taking out and grading the desirable portions.

On the face of the matter this looks unsatisfactory, and the suggestion would be to remove, in so far as it is possible, the impurities in and of the wheat previous to its milling. But in the light of the present milling information, nothing of that kind is at hand, nor have experience or experiments proved anything worthy in this direction. But it does look unreasonable that we take out the impurities at the tail end of the mill, or during the various detailed processes, and after the flour and middlings have been removed.

All this goes to show the importance of wheat cleaning or wheat purification. It shows that the nearer we come to purification in the beginning, the more we can add to the value of a bushel of wheat in milling. It shows, further, that the nearer we can come to purification at the head of the mill, in the same proportion will the value of the products be enhanced. In the present instance this calls our attention directly to wheat cleaning methods.

Cleaning of wheat is more important to the break flour than to the middlings. Imperfect wheat cleaning shows more plainly in the clear flour than in the patent. The flour which is made in the effort to reduce the wheat to middlings is rendered impure in proportion as the wheat is improperly or imperfectly cleaned. The particles of impurities which are of the same size as the flour particles cannot be removed. The scouring of the wheat makes a separation which is prolific in its benefits to the break flour. The natural dust of the wheat must, of necessity, go into this grade of flour if it be not removed by the cleaning machinery.

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through a separator, through a scourer, into a brush machine and then to the break bins. We put it through the motions. It is a habit with us to do this, and, in common with many other habits, there is a certain degree of carelessness about it. There is no denying that there is a great deal of carelessness in wheat cleaning. It occurs to me that if the miller were to sit down and think that whatever impurities are left in the wheat will go into his break flour and reduce its value in the market so many cents per barrel, he would reform his ideas, or lack of ideas, in regard to this wheat cleaning matter.

One great reason for the carelessness of wheat cleaning methods lies in the fact that about all there is left of the older methods of milling is that of wheat cleaning. The attention of millers is particularly attracted to new machines and new methods, and in their development it is not to be wondered at that something which was old, something which did not participate in the change, should be regarded with a certain degree of indifference. There are millers to whom this talk does not apply.

As to methods of wheat cleaning, the subject is one which cannot be treated with any degree of freshness. The method of wheat cleaning—that is, the course of the wheat, the operations to which it is subjected—is better understood than any other of the milling processes. The faults in wheat cleaning are not faults of ignorance; they are more faults of carelessness and thoughtlessness, a course which leads millers to double the capacity of the mill, oftentimes, without making corresponding changes or alterations in their wheat cleaning machinery. One thing which may be done is for the miller to examine his machines, their numbers, in order to determine their size, and then refer to the catalog of the maker and see if their capacity is what it should be. This thing often happens: the machine is large enough if run 24 hours; if run 12 it is obviously too small. A machine never should run to its maximum capacity. If it could do good work when so operated, it would naturally be supposed that it would do so only under ideal conditions.

The number of the operations should always be considered. If a machine is arranged to take out the heavier and coarser impurities, it is natural to suppose that it will not operate with equal facility and success upon the finer, smaller, lighter and more dangerous impurities. The warehouse separator removes the coarser and larger material, together with the larger volume of dust. There remains other foreign material to be taken out in the course of subsequent operations, and which can best be done by machines which are constructed for the purpose of recognizing finer and more delicate differences, which become necessary in the cleaning of the wheat. It has often been noticed that when a feed on a machine was too heavy—much more than could be handled effectively—the miller would buy another machine of the same size and pass the same stream through it, hoping thus to remedy the evil. But it cannot be done in that way. It is hardly within the range of possibilities to expect any number of overworked machines to accomplish a desired result. Taking the case cited, benefits would be realized only by dividing the stream, sending half of it to one machine and half to another. This same principle applies to the operation of any machine in the mill.

A great many wheat cleaning machines are overworked, not because they are too small for the size of the mill, but because they are run at too heavy a feed at various intervals during the running of the mill. To explain: the miller puts on a heavy feed, runs his cleaning machinery for an hour or so, accumulates a stock of wheat in the hoppers, and then throws out this part of the mill until the supply is nearly exhausted, when the operation is repeated. Instead of putting on a light feed, and one at which the machine would do the best work, and running it a greater number of hours, he hastens the work, through force of habit in some instances, and, the more discreditable motive in others, the desire to have a smaller amount of machinery to watch than the necessities of the case would demand. There is quite as much necessity for wheat cleaning machinery to run all of the time as there is for a millstone or a buhr. If it is desired that it should only run part of the time, its capacity should be estimated accordingly, and it should not be forced to do unnatural and incomplete work. When the wheat is poured on to a separator, say, in a large volume, the suction on the wheat, as it enters the machine, cannot be uniformly distributed throughout the grain, and for that reason cannot take out a uniform quality of light, poor stock. At the same time there will be a certain proportion of the light stock removed, and a certain other proportion of rich stock or whole wheat taken out, while the wheat which is supposed to have been cleaned will con-

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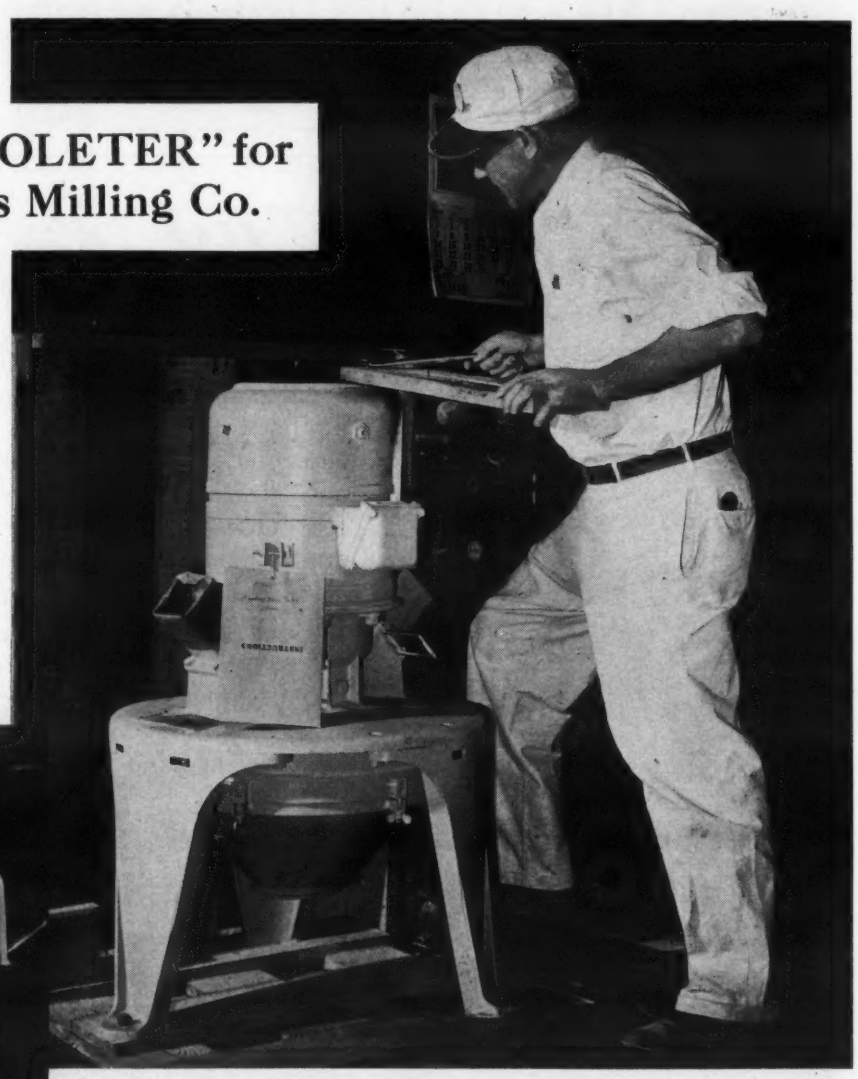

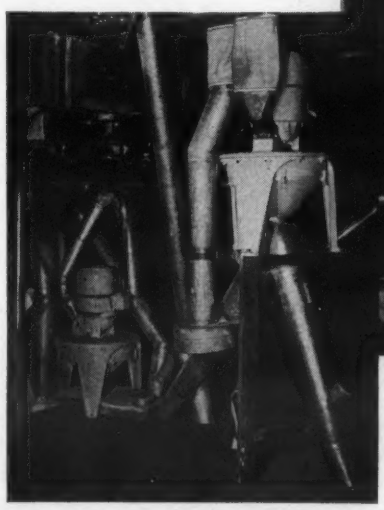

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tain light impurities which should have been removed. Here the miller finds himself between two fires—rich offal or screenings on the one hand, and poorly cleaned wheat on the other. The rich screenings are brought about in the same way as the other rich offal—by the heaviness of the feed—the screens being overloaded and thus forced to tail over in a wasteful manner. What is said of the action of the suction of the stock as it enters the machine applies in a like manner to its work upon it as it leaves it.

Flour Enrichment

(Continued from page 11a.)

riboflavin that assurance can be maintained that enriched flours will meet the required standards.

"We believe the above information is the best available with the present status of knowledge."

"The milling industry has earned an enviable reputation for the good job it has done on enrichment. We do not want to jeopardize this position in order to save a few cents on concentrates made or bought by the mills."

Reference was made earlier to the program for enriching degerminated corn meal and grits. These products are like white flour, in that they have undergone a refining process whereby most of the vitamins and minerals have been milled away. Upon analysis one often finds grits to have a lower vitamin and mineral content than that of white flour. Much emphasis has been placed upon the enrichment of white flour, but until recently very little emphasis had been given the enrichment of grits and corn meal. In order that those people whose diet consists of larger quantities of these degerminated corn products than of white bread and flour might share the nutritional benefits made possible by enrichment, South Carolina and Alabama have enacted into law the enrichment of these food products. The proposed standards of enrichment of these products requires that each pound of degerminated grits and meal shall contain a minimum of 1.5 milligrams thiamine, 16 milligrams niacin and 13 milligrams iron.

The South Carolina law provides that, since a majority of the grits are washed before cooking, these materials be added in such a manner that they are not lost with the rinsing water.

In certain sections of the South, substantial quantities of bolted and unbolted whole corn meal are being enriched by adding 8 milligrams iron and 10 milligrams niacin per pound.

While bread standards have not yet been finally promulgated by the federal government, enriched bread as produced from enriched flour, conforms to the following levels:

	Mg per lb
Thiamine	1.1
Riboflavin	.7
Niacin	10.0
Iron	8.0

The milling industry has strongly supported the enrichment of flour. It has been urged by the industry that the enrichment of all family flour be made mandatory, and current reports indicate that the issuance of such an order may not be far distant. For the past two years, the baking industry has experi-

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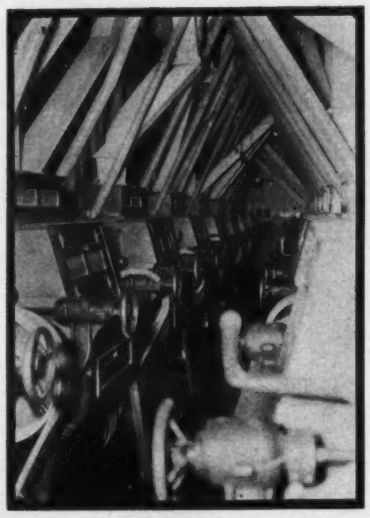

How much would it cost to replace the above battery of roll stands? You probably don't know; it is not your mill. Do you know the answer to that question about YOUR mill?

It is a simple matter to conduct a "glance appraisal" of a flour mill. But standing back on the roll floor, and, after a hasty glance at the battery of roll stands, one cannot determine the true replacement value of the machinery. That job requires technical knowledge gained by years of experience.

Our appraisal engineers know machinery costs, depreciation rates, replacement values. That is their business. Our steadily growing list of satisfied flour mill owners and managers all over the country is proof of the fact that we do have the know-how.

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*** CUTS INSECT DAMAGE TO SILK CLOTH**
*** DESTROYS RODENTS WITHOUT CARCASS NUISANCE**
*** IS EASILY APPLIED AND**
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enced an expansion in pounds produced, and its leaders attribute this not only to the effects of the war, but to the nutritional value identified with the enrichment feature.

"RIBO TINT" NOT A FACTOR

At the time riboflavin was added to the formula for enriched flour, some concern was expressed as to the reaction of the consumer to flour which might show the effect of the yellow color. From reports in the trade, and from comments which a number of millers have made, it does not appear that the slight difference in color will be detectible by the consumer. It now appears that there is far less concern over this eventuality than there was a few months ago.

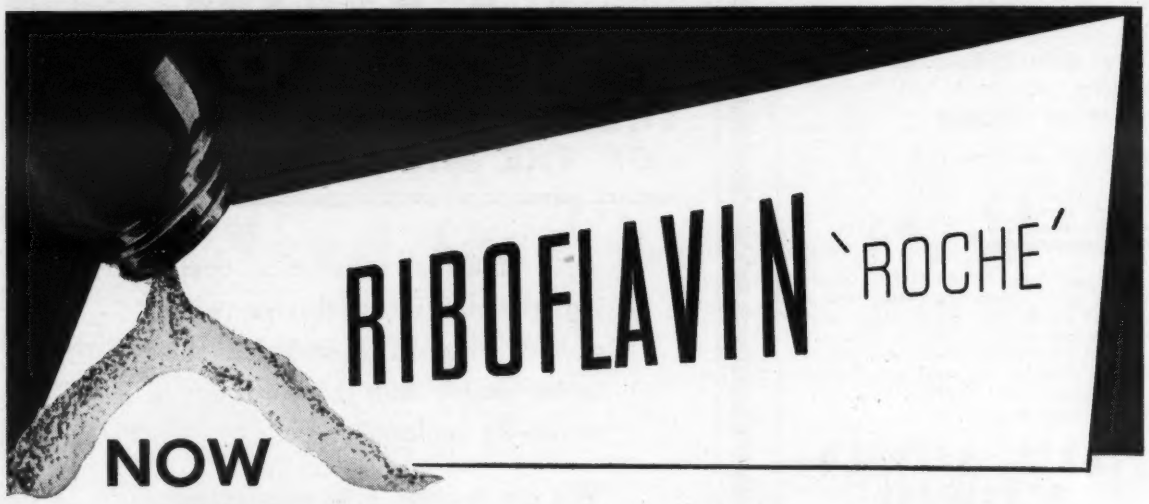
VITAMINS FOR ANIMALS, TOO

More recently, the animal feed industry has turned to the use of at least two important vitamins of the B group, namely, riboflavin and niacin. A diminishing supply of a number of feed materials, such as dried milk, meat scraps, fish meal and alfalfa meal has been apparent for the past two years. At the same time, substantial reductions in the selling price of riboflavin made it at once practical and advantageous to utilize the pure vitamin itself as a source of this important growth factor in poultry rations and in hog feeds as well. Substantial quantities of riboflavin are now used by the feed industry.

One of the newer applications of "vitamin like" materials is seen in the growing recognition of the importance of choline in poultry feeds. Perosis, or slipped tendon, appears to be adequately controlled if a sufficient quantity of the mineral, manganese, plus sufficient choline, is present in feeds. Choline is also recognized to be a vital factor in protein metabolism, and as a feed supplement may prove to be of fundamental significance as vegetable protein continues to replace animal protein in feedstuffs.

While it is only necessary to add from one to two grams of riboflavin per ton of poultry feed under practical conditions today, the addition of this small quantity has proved to be no problem to the feed mixer.

Currently then, not only are vitamins playing an essential part in the enrichment of flour, in bread and corn products, but they are also contributing basically to the nutritional needs of domestic animals. The milling and baking industry have good reasons to be proud of the material contribution which enrichment of their products has made to the welfare of our people—an enrichment program founded on voluntary co-operation of your industry to meet human needs which are recognized by scientists and government officials.



All you want — no W. P. B. allocation —
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Now—for the first time since Hoffmann-La Roche pioneered in the production of riboflavin—you who want it for flour enrichment or feed fortification are permitted *both* by quantity production and by the Government to have *all* you want, *whenever* you want.

It is now the eleventh year since riboflavin (vitamin B_2 or G) was first isolated. Then, 1933, it took from 5,000-11,000 quarts of whey to yield a single gram.

In 1935, when Karrer, collaborating with the Hoffmann-La Roche Scientific Laboratories, announced the first synthesis of riboflavin, the first gram cost $2,500. Commercial production seemed a baffling problem.

Nutritional data, too, were slow in accumulating. Pure crystalline riboflavin (made from liver) was experimentally used in animal feed in 1935. Later, reports began to tell of its growth-promoting properties. In 1938, deficiency symptoms in chicks were described, evidence given that the vitamin could prevent them. Different groups of scientists reported also on hatchability studies. Still later, reports began to establish the precise percentages of riboflavin for various types of feeds and food products.

By 1940, date of the Food and Drug Administration's first hearing to consider the addition of vitamins to white flour, nutritionists were convinced that riboflavin deficiency was widespread among our human population, so agreement was reached that it should be included with the other enrichment ingredients.

But it was not till 1941 that the persistence and skill of Roche chemists solved—after 6 years—the problem of industrial production on a scale making possible present-day quantities—at favorable prices.

Large new riboflavin units at Roche Park came into operation in 1943, and pushed production to new peaks. Then, April 1, 1943, the War Production Board issued General Preference Order No. M-299 placing all riboflavin on allocation.

***Now,* however—as of June 20, 1944—no W.P.B. application is needed. You need not even plan your orders ahead as you have been doing. You are free to order all you want, for immediate delivery, whenever you want it.**

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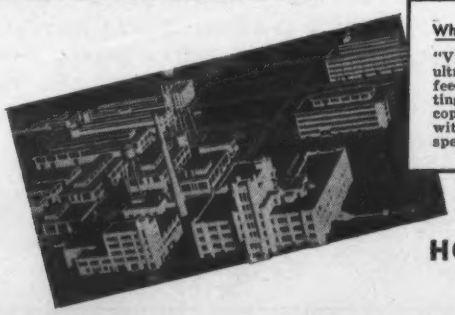

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Proteins

(Continued from page 4a.)

proteins which are producing as good, and in some instances, better results than the rations we fed before the war. The war has stimulated research, and in the opinion of many, we have really advanced in our knowledge of producing poultry rations to such an extent that it is questionable whether we will ever go back to just the same type of rations used before the war.

The care exercised in processing has material influence on the biological efficiency of the product. This applies to both animal and vegetable protein feeds. For example, there can be a wide variation in the biological efficiency of different soybean oil meals, regardless of the particular method of processing used.

Using a good grade of dry skim milk powder, and figuring this at 100, the biological efficiency of different soybean oil meal samples, as determined by the rat assay method, may vary from 45 to 95.

This is due to the amount of heat applied during processing and the length of time that the heat is applied, the moisture content of the beans, and several other factors. This heat treatment is necessary to free the locked-up protein values which are present in raw soybeans, but not available until they are released.

A number of the large processors maintain rather large biological laboratories using both rats and chicks to determine biological values. It has been their experience that both a chemical control laboratory and a biological laboratory are necessary in order to obtain the quality and uniformity which they desire in the meals they produce. In fact, a number of these processors are co-operating in order to standardize their methods of testing. New data is constantly being obtained, and this will enable processors to produce products with a higher biological efficiency than ever before.

This difference in biological efficiency explains, in part, the lack of correlation between the results obtained by different investigators. It would be of material benefit if those who are carrying

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on experiments with soybean oil meal would first determine the biological efficiency of the meal that they use before they start their experiments.

No discussion of protein would be complete without consideration of the role which protein plays in building acquired immunity to many infectious diseases. I wish to quote from a recent address by Dr. Paul R. Cannon, professor and chairman of the Department of Pathology, the University of Chicago, given before the Citizens Board of the university, on Dec. 13, 1943, entitled, "Food—Facts—and Fads":

"Among the food constituents utilized for building up resistance against infectious micro-organisms, protein plays a dominant part. This does not mean that other dietary elements are not important; but protein metabolism determines the structure of the antibody mechanism; the foundation of the entire structure of acquired immunity; and antibodies can be fabricated only from protein foods. We have discovered in our laboratory that animals fed diets adequate in all dietary elements except protein cannot produce antibodies effectively. These antibodies, so essential for the successful defense against such diseases as diphtheria, smallpox, lockjaw, typhoid fever, scarlet fever and many other microbic infections, are large protein molecules composed of a complicated assortment of amino acids, the so-called 'building stones' of protein. Unless these dietary amino acids in the form of proteins are eaten in ample quantities and in a wide variety, specific antibodies can no more be synthesized than can a brick building be erected without a sufficient supply of brick."

"The recently announced plans in India to vaccinate some 9,000,000 starving persons in order to prevent further deaths from cholera and other epidemic diseases will fail, in all likelihood, unless at the same time these persons receive adequate supplies of protein-rich food materials from which to produce antibodies. Evidence for this statement is furnished from World War I, where it was observed, in vaccination of starving peoples against typhoid fever, that not infrequently the disease developed even within a few months after vaccination. From a practical standpoint, therefore, these famished people need food with which to replete their bodily protein stores; without it they will continue to lose their capacity to produce antibodies until, finally, some ordinarily mild type of intercurrent infection will become terminal."

For a number of years students of nutrition and veterinarians have realized that there was a close correlation between nutrition and disease. As time goes on, and more experimental data becomes available, this correlation becomes increasingly evident. This work which Dr. Cannon is doing should serve to stimulate other investigations which may be applied to poultry, and if intelligently carried on, will yield information of material assistance to the poultry industry in reducing mortality from disease. To boil it all down, it amounts to this: When we understand the exact nutritional requirements of poultry, we will be able to build up the disease resistance in our flocks against many of the diseases which take such a terrible toll. This should not be understood, however, to mean that we can hope to dispense with testing for pullorum disease, vaccination against chickenpox, and many other similar practices which are in use at this time.

Because of the feed conservation program and the fact that feed formulas must be reformulated from time to time due to the scarcity of different ingredients, the physical appearance of feed mixtures is apt to vary. All this seems to create a feeling of apprehension on the part of many poultrymen, much of which is not at all justified. The color of a poultry mash is not a good indication of its feed value. For example, a mash containing 6% alfalfa meal may vary in color due to the color and also the fineness of the alfalfa meal used. The finer the alfalfa meal is ground, the greener the feed will look. On the other hand, if the vitamin A content of the alfalfa meal used is lower than average, the feed manufacturer may use slightly more vitamin A from fish oil. Even though the finished feed is lighter in color, the vitamin A content may be higher than the one which has a greener appearance.

About the only real value of an analysis for crude protein, fat, fiber and carbohydrates is to comply with the state registration laws.

In closing, I wish to pay a tribute to the research workers in our agricultural experiment stations, both federal and state. Were it not for their untiring efforts in searching for factual information, the feed industry would not be able to meet the challenge which the war has presented. The marvelous response by the poultry industry during the past year would not be possible without this research data, and that is why I believe the poultrymen of this country owe a debt of gratitude to these men who have done so much for our industry.

The results he wanted to get from his prepared doughnut flour were clearly set forth by the eastern miller who sent a sample of his product to the Monsanto Baking Laboratory.

In the laboratory, extensive baking tests were conducted and comparisons made. The laboratory's recommendation called for a weaker, more granular flour, less dried skim milk, more sugar.

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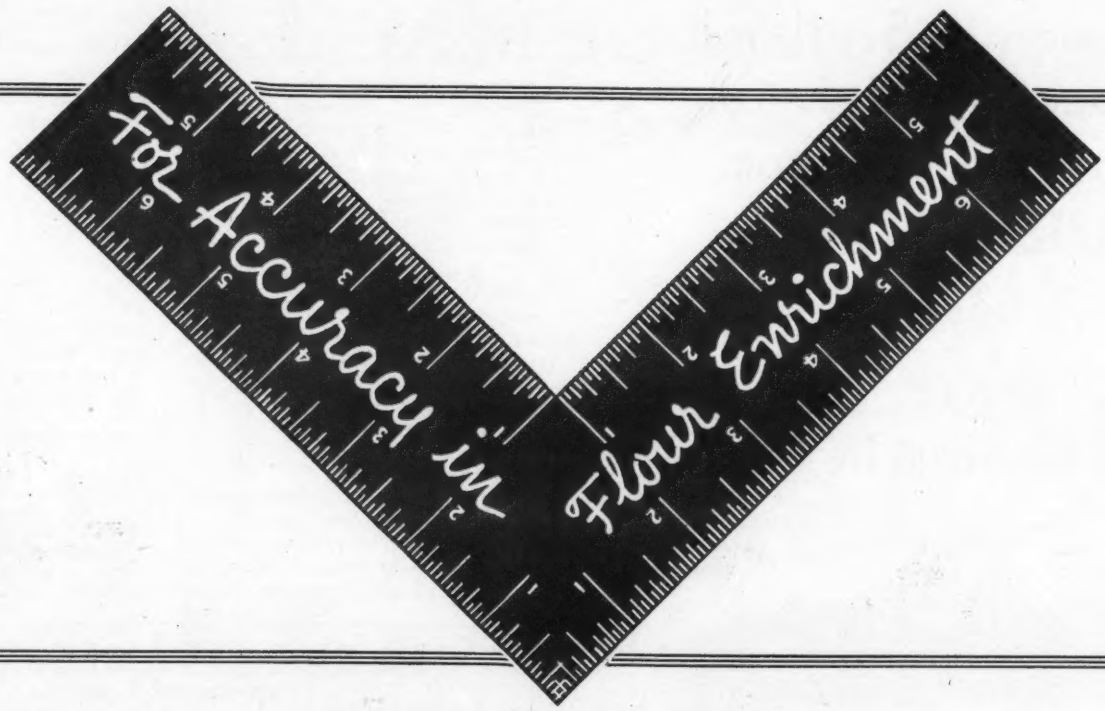

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Milling Technology

(Continued from page 3a.)

Enduring mills, since the development of the milling industry, have been built where abundant wheat met abundant and cheap power to drive the machinery. The river mills of the Romans, windmills in Holland, steam mills in England, mills along St. Anthony Falls in Minneapolis and the Niagara Falls in Buffalo—all demonstrate that economic fact. The latest meeting of wheat and cheap power has been the wheat fields and the oil and gas fields of the Southwest. The possibilities thus offered should not be overlooked.

THE Institute of Milling Technologists is especially concerned with processing equipment and technologic knowledge. Learning and knowledge in milling—just as in all other fields—opens up the horizon to what we do not know. Every question answered gives rise to several questions to be answered later. We must admit that there is a lot of work to be done to increase the pride in our profession.

Many years ago I made a hasty remark concerning the most urgently needed research in milling. The remark found ready response, to my surprise. The remark was answered with the statement that science has developed scores of physical instruments and that we should take advantage of the instruments, use them, apply them wherever possible through the milling process, take measurements and readings, and then use the results.

IDEAS FROM OTHER INDUSTRIES

Our good friend and fellow-member, the late S. H. Stoltzfus, held that we will not progress if we stay within the four walls of our mills and offices. He advocated strongly that many changes and improvements could be learned from learning more about the accomplishments in other industries. We should visit and study their operating methods and machinery and possibly find some developments that could be applied to the flour milling industry.

New materials create possibilities for improvement even though they may be beyond the means of an individual or a company. Research in the metallurgical and chemical laboratories has produced new alloys, plastics, metals, glass, etc., which have properties we have always desired. If a miller reads the prospectus of a plastics manufacturer, he sees quickly that the manufacturer has a formula for plastic spouting which would be light in weight, strong, resistant to wear and possessing good insulation properties. It would be possible with this type of spouting to manufacture standard spouts and fittings. New installations could be spouted in a matter of hours instead of spending days building tailor-made spoutings.

FIELD OF BIOLOGICAL CHEMISTRY

We were informed some time ago that certain gases can influence plant life in storage. A lot of other ideas may spring out of the same pattern. The preparation of wheat for milling should begin when the grain is received at the elevator. Perhaps it would be possible with the use of gases, to control the condition of wheat so as to bring it to the mill at a biologic age best suited to our needs and to eliminate the "sweating" and over-aging of wheat. Insects and plant parasites can be controlled in storage.

A great deal of work needs to be

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done on the basic phenomena of moisture change in the wheat berry. There are many variables interplaying with the addition of water to the wheat berry.

There are problems connected with wheat cleaning that call for re-orientation. Some of us have no doubt experienced occasionally the necessity for by-passing the cleaning machinery due to a temporary break-down in that department. Some millers contend that there is no laboratory on earth that can distinguish between flours milled from cleaned and uncleaned wheat. Some ask: "Why run these machines, if that is the case?" Is a new method of cleaning and washing the wheat the answer to that question?

In grinding machinery we have a newcomer in the impact grinder. To compare the work of different types of grinders, we need a yardstick or standard to evaluate the work. We want to know how much grinding work (disintegrating) is done on the same amount of power and overall operating cost by different combinations on roller mills. The speed, roll diameter, differential, type and number of corrugations, spiral, etc., all affect the efficiency of a roller mill as a grinder. The same factors affect the quality of the milling stocks. Much work has to be done as to what is the milling quality of certain stocks and what to do to develop or improve the quality. It would be interesting to see some basic sifting tests on gyrating and reciprocating sieve motion with different stocks under different speeds, stroke, load, and atmospheric conditions.

Air conditioning is generally considered as a choice subject for research. By now we are all conscious of the fact that atmospheric vapor pressure has a lot to do with milling yields.

Dust collecting problems are connected with air conditioning. In viewing in what new ingenious ways other industries have found to catch dust, it should not be long before the milling industry adopts the new methods and devices.

SUGGESTED PROBLEMS FOR RESEARCH

Control of mill operation hinges on checking weights, granulation and quality. The control should be instantaneous. Granulation can be controlled by measuring the weights of the different reductions and separations. We should have an automatic indicating scale which would show on a dial how many pounds an hour are running down a spout or conveyor. Grinding would be guided or regulated by these dial readings and then we could attain a much higher degree of uniformity and efficiency. At any moment one could determine the mill yield, along with the percentage release on the strategic rolls.

For quality control, perhaps some of the new electronic devices could be applied. In some cities, the street lights are turned on by the action of a photo-electric cell when darkness approaches. The color of certain mill streams is very definitely correlated with the ultimate quality. Milling with uniform mill mixes, we could apply an electronic device like a smoke density indicator to indicate the color shade of such streams as the middlings scalps, tailing stocks, stock going to the last reductions. We would have a positive measurement for what we now have only human intuition. Instrument board control is a reality in steel mills, power plants, chemical manufacturing plants, etc. It may be only a beautiful dream to vision such control for flour mills but the dream may be worth investigating.

v v

EDITOR'S NOTE.—*The foregoing article was adapted from an address made by Mr. Rozsa at the annual banquet of the International Institute of Milling Technologists in St. Louis, June 6, 1944.*

The word "patent" as applied to flours probably originated with the introduction of the middlings purifier and the system of high grinding. In the United States, scores of letters patent were obtained on machines and systems in the latter part of the past century and it was rather natural that the higher grade flours produced should come to be known as patent flours. Because of a man's weakness for the superlative, the millers were shortly offering not merely patent but "high" patent and so on.—*Studies in Practical Milling.*

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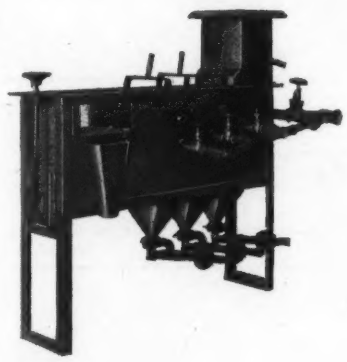

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K. C. REVOLVING DISC ASPIRATOR

HERE is an ideal machine to clean up your grain or break stock. The K. C. Aspirator pulls a controlled stream of air through this stock and carries away the light material you want to remove. With its controls, this Aspirator can cut deep into your stock or just take off the lightest material. You can adjust it to suit your needs.

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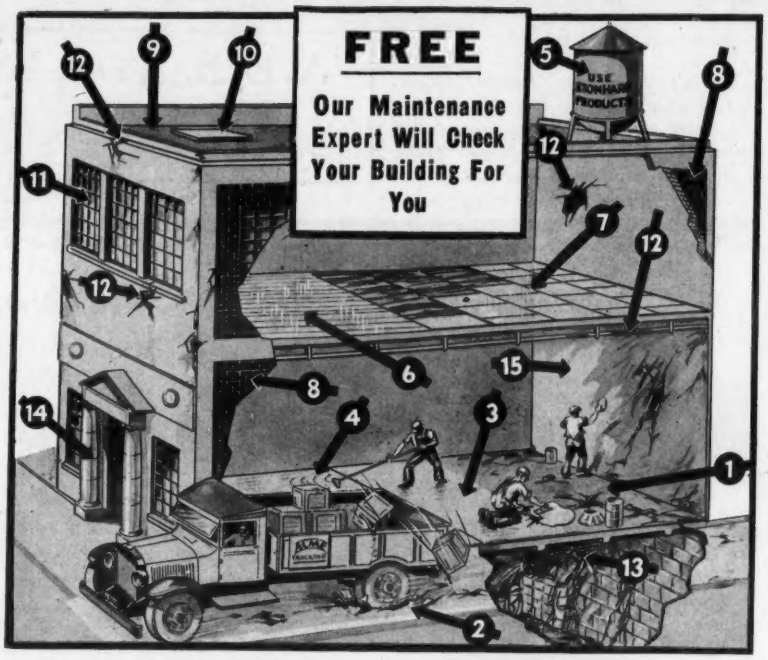

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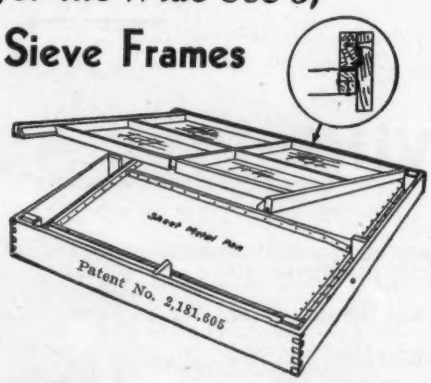

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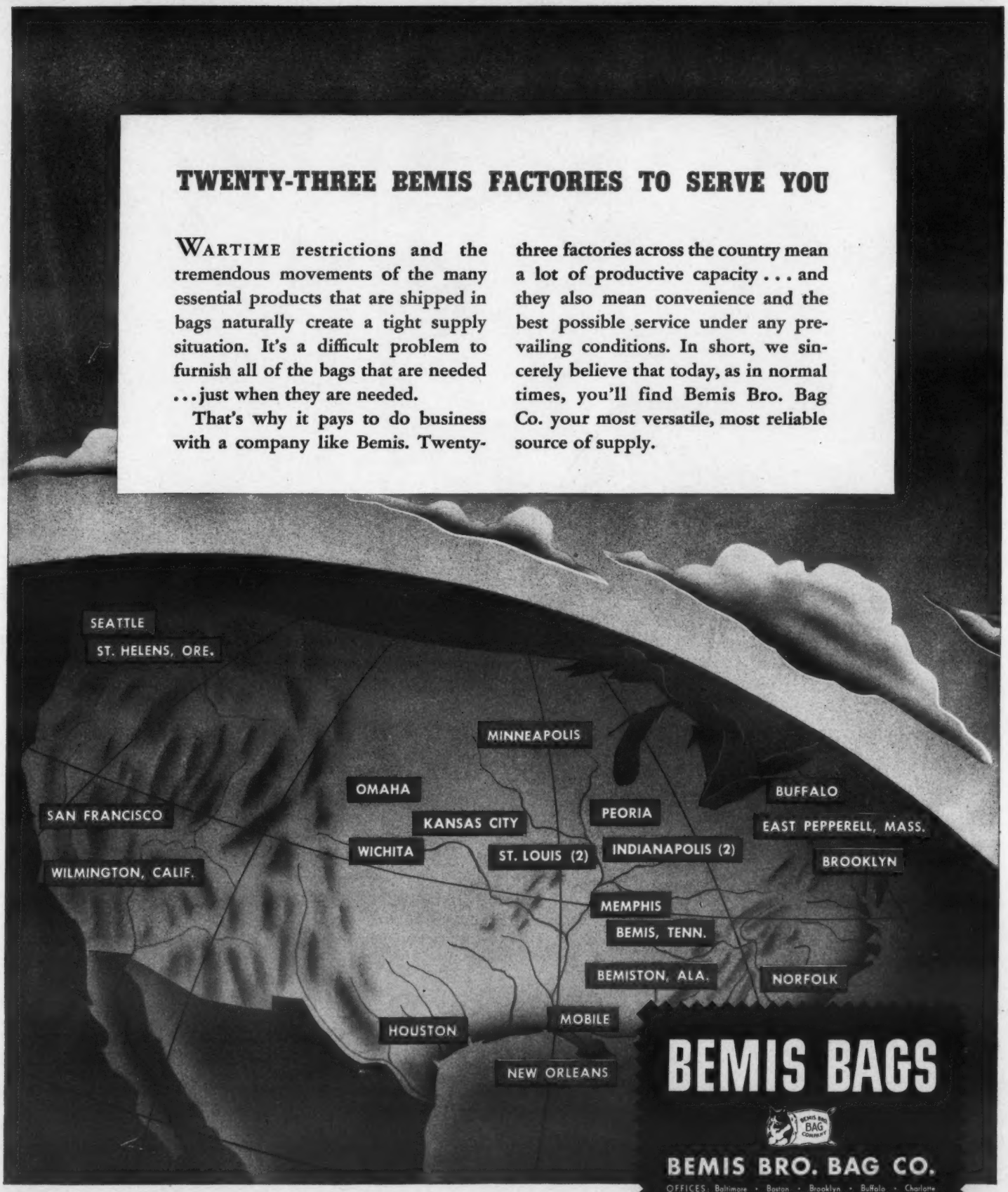

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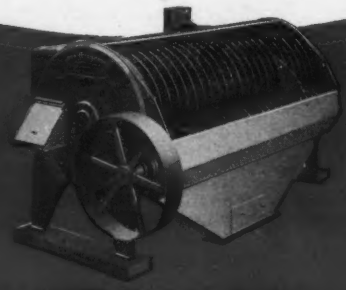
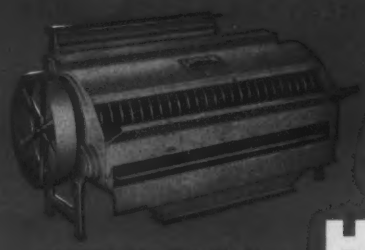
Remove Cockle and Oats from the Mill Stream

DO IT ACCURATELY, THOROUGHLY, AND AT LOW COST WITH CARTER DISC SEPARATORS



CARTER Disc Cockle Machine



CARTER Disc Oat Machine

For exactness of separation and for thoroughness in cleaning grain—Carter Discs are the leading choice of millers throughout the country. The Carter Disc Separator is unmatched for its exacting removal of oats and barley; its elimination of cockle, vetch and other small seeds from wheat; and its reclaiming of good milling wheat from screenings. These separations can be made accurately, at low cost, because of the length differences in the kernels. Oats, for example, are longer than wheat; cockle, on the other hand, is shorter than wheat. The Carter Discs pick up the kernels which they are designed to handle and reject anything longer. Nothing can match the exactness of disc separation. Don't let cockle or oats slip through with the wheat going to your rolls. Protect flour quality with Carter Disc Separators — the Carter Disc Cockle Machine for cockle removal—the Carter Disc Oat Machine for oat removal. New machines are available for essential needs. Write for priority information now.

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July 1, 1944

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WAR FOOD ADMINISTRATION

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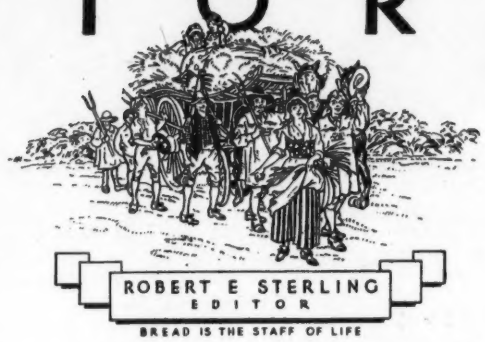
EDITORIAL



CHAOTIC LEGISLATION

ONE of the most misdirected and dangerous pieces of farm legislation to get by Congress in many years is the Bankhead amendment to the bill extending the life of the Office of Price Administration. If the law is followed as it is written it not only will make necessary an enormous subsidy requirement but it will eventuate in the government owning virtually all of the wheat, corn, peanuts, soybeans and other agricultural commodities for which there now are price support programs. To say that it would bring confusion to establish markets is far understating the case; it would to a great degree eliminate them. Dealers, distributors and processors would remain in business only by permission or whim of the government.

The amendment provides that the executive shall use all lawful means to return farm producers parity or the price prevailing between Jan. 1 and Sept. 15, 1942, whichever is the higher. That means that even if parity were to decline sharply within the next 12 months the President still would be required to return to the farmer a price which might be substantially in advance of parity. If the war were to end suddenly and prices were to react sharply lower than present levels, it is conceivable under the price bill as passed that the government, maintaining grain prices at the Jan. 1-Sept. 15, 1942, levels, would be the sole owner of virtually all of the nation's grain and would be prohibited by law from selling at less than parity. Experienced grain men believe that the same result will occur if the government attempts to support present prices above the loan rate or above the market price.

The way home seems simple enough—too simple, perhaps. Much money will be needed to carry out the terms of the law, and if the level of congressional statesmanship is any higher after all the convention headaches are over our great but bamboozled national law making body may know what to do about that. There are other ways in which it can begin repenting at leisure for its compromise in haste—a very much misunderstood compromise that apparently was accepted as mere face-saving all 'round. One would be to commence all over again and pass a different law, though we do not recommend that on the evening of an election—it might turn out to be even worse than the one we have.

——BREAD IS THE STAFF OF LIFE——

STATISTICAL LIGHTS ON AGAIN

WHEN the weather bureau came to life again, and black-outs became brown-outs, and the Office of Civil Defense put away its iron helmets and first aid manuals, it was clear that the war had withdrawn from us, that we were no longer menaced on the home soil and that peace was not too far away. Now another portent of the certainty and imminence of victory brightens our lives. Statistics of trade are coming back to us.

When the night of war settled down the fact-gathering facilities of the United States Department of Commerce were largely converted to the compilation of information specifically related to the immediate needs of war agencies. Such statistical data as continued to be available were shut up from our own as well as from the eyes of the nation's enemies. But now Mr. Jesse H. Jones, secretary of commerce, says to us:

"The time has come when we must place greater emphasis upon the future. Efficient reconversion of industry from a war to a peacetime basis, and continuing operation in a framework of a free enterprise economy, requires that basic factual information on commercial and industrial operations be widely distributed and readily available. The Department of Commerce, in co-operation with business and industry, and other government agencies, intends to design a statistical program of maximum usefulness."

A substantial part of the preparatory work necessary for such a program already has been done, Mr. Jones reports, but much more remains. The advice and counsel of industry and business are to be solicited. Major items in the program include a biennial census of manufactures in 1946 covering the calendar year 1945. The business censuses of 1941 and 1943 were suspended under provisions of the Second War Powers Act, by executive order. Consequently the most recent census information on manufactures, mineral industries and business relates to 1939.

Normal channels of distribution have been badly disrupted by the requirements of war, and the business world has been subjected to great wartime stresses because of the problems of supply and manpower. At present business has no adequate knowledge of the over-all impact of the war on channels of distribution. To do something toward remedying this deficiency the department hopes to find the means to make its 1946 census of business cover wholesale and retail trade, services and construction. A sample survey of population designed to disclose the major wartime shifts and a quinquennial census of agriculture are planned.

Meantime the large body of wartime administrative and statistical data will be analyzed and sifted with the idea of releasing as much of it as seems likely to be useful to business and industry. Some of the restrictions governing the release of foreign trade statistics already have been removed so as to permit the publication of complete United States import and export figures through 1941. With the exception of certain strategic items, information on trade with Latin America will be published with a lag of 12 months; trade with Canada and Mexico six months late, and complete commodity statistics 12 months late. Additional current data on the foreign trade of the United States will be made available as rapidly as consistent with requirements of military security.

One of the major disabilities of private business during the war has been the fact that the statistics of trade and supply have been a virtual monopoly of government. Industry knew only what it was permitted to know. It therefore was hindered in protecting its own interest and in planning for the public good.

Now, it is to be hoped, all will be speedily restored to status quo ante. And it would seem that the postwar status may even be an improvement upon all that went before. Industry's individuals and the organizations of trade are to be consulted. The formula for what is needed and how it will be provided will not, we are assured, be decided solely in Washington.

——BREAD IS THE STAFF OF LIFE——

"UNJUST MONOPOLY PROSECUTIONS"

IN view of the insistent intimations from Washington that there is to be no postwar version of NRA to assist American business in its job of providing prosperity employment on a scale hitherto unknown, but that on the contrary there is to be an intensification of anti-trust prosecution to the end of insuring the highest possible degree of competition in business, the following excerpt from a recent report of the Senate postwar employment committee headed by Senator Walter F. George of Georgia is peculiarly pertinent:

"The whole problem of monopoly legislation should be carefully studied and clarified to the end that monopolies can be adequately punished but to the end also that business may know clearly just what is and is not prohibited and may not be harassed by unjustified monopoly prosecutions."

The extraordinary wartime activities of the Department of Justice, and the numerous conspicuous failures of that agency to establish allegations of monopolistic practices, render the concluding phrase of the paragraph particularly significant.

Oddly there is a paradoxical development in respect to the export field. Washington news has it that the Departments of State and Justice have agreed upon a postwar trade policy that looks to the creation of international "governmental cartels" as an alternative to private cartel agreements such as have had government approval in the not too distant past. The measure is represented as necessary to preserve American foreign trade in the inevitable postwar international scramble.

But there will be grave problems of readjustment on the domestic business front too. The baking industry just now is becoming acutely conscious of the particular problem it faces, and in general this is the problem of all industry. Bakers have become accustomed to a degree of industry co-operation under special wartime government sanction that is unexampled in the entire history of the trade. Under the advisory committee system they have been permitted to act collectively to effect production and material use economies without fear of anti-trust prosecution. The industry advisory committees have approved and adopted many practices which would have been clear violations of the Sherman Act in peacetime.

Department of Justice folk say that with the ending of wartime controls industry no longer will be able to live under the advantages of this immunity without enabling legislation from Congress. But they doubt if industry will submit to a continuance of price administration or even to a revival of some sort of NRA. We shall hear many voices, as the war's end draws nearer, warning of the more and more imminent perils of postwar inflation and deflation, and the advantages of some kind of controls, either industrial or governmental—or both—will be made to seem more and more imperative as the day approaches.

——BREAD IS THE STAFF OF LIFE——

WHAT PRICE DIPSOMANIA?

OUR food planners do not seem to have turned far away from the prodigal's path. How otherwise can we explain the whiskey holiday? This is, of course, a political year. Forty million more gallons of alcohol at so many votes per gallon no doubt are worth such and such number of votes. So be it, in this far from perfect world. But while this source of human error may explain it does not excuse.

There is a big crop—yes; but it is not wholly in the bin, and Mother Nature may not be so indulgent next year. The end of the war is in sight, but many a bullet yet must be fired, and no man knows the number. Neither does any man know for certain that the 10,000,000 bus of grain which must go into the 40,000,000 gallons of August alcohol will not be needed to support the firing of that last bullet or to repair the ravages of war's accumulated hunger that may claim it immediately thereafter. The wise leader in war prepares for the worst, not the easiest issue; he builds up reserves for catastrophe; he fashions guns that may never be fired. Better grain rotting in victorious bins than spent recklessly before its need is known.

Though the end of the war be near there is yet much blood to be shed. If we can endure the time of that waiting we can wait as long, surely, for the little binge.

——BREAD IS THE STAFF OF LIFE——

"We must always beware of trying to build a society in which nobody counts for anything except the politician or official—a society where enterprise gains no reward and thrift no privileges. I say trying to build because of all races in the world our people would be the last to consent to be governed by bureaucracy."—Winston Churchill, British prime minister, in his recent broadcast on postwar planning.

Canadian ★ ★

CONDUCTED BY A. H. BAILEY
Manager Canadian Branch
Lumsden Building Toronto 2, Ontario
Cable Address, "Palmking"

Canadian Flour Output Still Under Figure of Last Year

TORONTO, ONT.—Canadian production of flour in May was slightly higher than in the previous month but below that of May, 1943, according to the Dominion Bureau of Statistics. Output amounted to 1,962,264 bbls compared with 1,948,537 in April and 2,099,996 in May, 1943.

Total production for the 10 months of crop year ending with May is still considerably ahead of the corresponding period of 1942-43, amounting to 20,676,964 bbls as against 19,749,123.

Notwithstanding the smaller output in May, exports showed an increase and were the highest of any month so far in this crop year. The amount of flour exported was 1,575,589 bbls compared with 1,542,830 in the previous month and 1,210,414 in May, 1943.

Production and exports of Canadian flour by months for the 10 months of current crop year, with precentage of operation:

1943-44	% of Operation	Production bbls	Exports bbls
Aug.	82.4	1,888,030	1,121,568
Sept.	91.5	2,014,255	873,917
Oct.	93.3	2,118,409	849,886
Nov.	96.7	2,175,831	857,691
Dec.	94.8	2,173,433	1,106,479
Jan.	93.0	2,041,193	1,125,034
Feb.	94.9	2,087,705	854,272
March	95.0	2,267,307	1,226,281
April	92.3	1,948,537	1,542,830
May	86.3	1,962,264	1,575,589
Total		20,676,964	11,153,547
Totals for 10 months last yr.		19,749,123	10,217,429

The output of winter wheat flour in May which is included in above figures was down to 17,376 bbls compared with 85,940 in the same month last year.

CROP YEAR WHEAT EXPORTS NEARLY 250,000,000 BUS

TORONTO, ONT.—Exports of wheat and flour from Canada in the 10 months of current crop year ending May, as reported by the Dominion Bureau of Statistics, totalled almost 250,000,000 bus, but this figure excludes exports to the United States during April and May, for which statistics are not available. Export shipments of wheat flour, in terms of wheat, show a gain of more than 4,000,000 bus compared with last season, while the increase in exports of wheat as grain is due entirely to shipments to the United States.

Quantities of Canadian wheat and flour in terms of wheat exported in the 10 months with comparison for same period of previous year:

	1943-44 Aug.-May bus	1942-43 Aug.-May bus
Wheat as grain	199,869,647*	119,708,017
Flour in terms of wheat	50,100,962	45,978,432
Total	249,970,609	165,686,449

*Excludes April-May exports to U. S.

——BREAD IS THE STAFF OF LIFE——

WHEAT AND GRAIN DIVISION

TORONTO, ONT.—The Hon. J. L. MacKinnon, Canadian minister of trade and commerce, who is vacationing in western Canada, recently announced at Edmonton the creation of a wheat and grain division within his department. Mr. MacKinnon stated that the division would keep under constant survey Canada's grain position with reference to supply, transportation, domestic and export demands.

——BREAD IS THE STAFF OF LIFE——

LULL IN FEED TRADE

TORONTO, ONT.—Trade in feed is quiet in this part of Canada. Good crops of everything are in prospect and the feverish demands of some months ago have slackened. This is a welcome relief to the trade. Vacations are again possible and many are taking advantage of the lull in that way.

MILLERS OF SOFT WHEAT AWAIT PRICE DECISION

TORONTO, ONT.—The soft winter wheat millers of Ontario are waiting with some concern for the wartime price control authorities to announce a price for new crop winter wheat. There is a ceiling on the old crop of $1.26 bu, Montreal freight basis, which gives producers at country points $1.12@1.14 bu at mill doors. If this price is renewed the ceiling on soft flour will remain undisturbed. If it is raised, as some hold it should be, a subsidy on this flour would become necessary if stability in prices for the products is to be maintained.

The control authorities are understood to be considering this question now and their decision should be forthcoming within the next few days. Farmers are hoping for a higher price and their deliveries of wheat to flour mills will be governed by the outcome of official discussions regarding price.

In the meantime it is satisfactory to know that Ontario is already harvesting one of the largest and best crops of winter wheat grown in recent years. This is good news for the baking and biscuit trades.

——BREAD IS THE STAFF OF LIFE——

ENRICHMENT DEMANDED BY WESTERN MILL GROUP

VANCOUVER, B. C.—The Saskatchewan Flour Millers Association, at its recent convention in Regina, decided to press for federal legislation to allow the fortification of high grade flour with synthetic vitamins. The millers felt that the present Canada-Approved Flour, which contains the natural vitamins, was not meeting with public acceptance, as it resulted in a loaf of inferior appearance.

It was pointed out that there is a ridiculous situation in Canada where federal legislation prohibits the fortification of flour with synthetic vitamin B_1. All flour exported on lend-lease is being fortified on the demand of the British Ministry of Food. The millers felt that while Canada-Approved Flour as now marketed is more profitable from a miller's standpoint, the public is unwilling to accept a flour of inferior baking qualities and thus is being robbed of the nutrition available in fortified flour.

It was brought to light that nearly every independent mill is operating 24 hours daily, with a large percentage of the output being exported to the United Nations. Nearly every mill is experiencing a labor shortage, but it is felt that the federal authorities are doing all they can in this regard, by giving labor priorities to flour mills working on export.

Officers elected were: president, B. J. Albright of Waskesiu Mills, Prince Albert; vice president, Charles Peaker, Yorkton Flour Mills; secretary-treasurer, P. B. Fisher, Union Supply Co., Ltd., Rosthern.

During the convention the millers were entertained by Parrish & Heimbecker, Ltd., and Canada Packers, Ltd. Keith Palmer, of Merck & Co., Montreal, gave an address on flour fortification and the most satisfactory methods of introducing it into flour.

——BREAD IS THE STAFF OF LIFE——

BARLEY KING IS DEAD

WINNIPEG, MAN.—N. Taitinger, 83, internationally famous "barley king," died at his farm at Claresholm, Alta., last week. At the Panama-Pacific Exposition in 1915 he carried off two first prizes, one for Marquis wheat and one for malting barley. In 1923 he took a top award for barley at the Brewers and Malting Exhibition, London, England. It was the first time in 40 years that the prize was awarded to a farmer outside of the United Kingdom. He was also among prize winners at the Chicago International in 1924.

——BREAD IS THE STAFF OF LIFE——

DR. A. H. R. BULLER DEAD

WINNIPEG, MAN.—Dr. A. H. R. Buller, 70, one of the Dominion's outstanding botanists, died here last week. He was professor of botany at the University of Manitoba for 32 years and since his resignation in 1936 was a professor emeritus. Dr. Buller was president of the Royal Society of Canada in 1927 and was awarded the Flavelle Medal in 1929. The British Royal Society awarded him its Royal Medal in 1937.

——BREAD IS THE STAFF OF LIFE——

NEW AUSTRALIAN PRICES

TORONTO, ONT.—New export prices of wheat announced by the Australian Wheat Board are $1.22 bu for bagged and $1.14 bulk to certain destinations. To other destinations where strong competition is met the export price has been fixed at $1.01 bu bagged and 93c bulk.

Flour mills are working at 87% of capacity and flour production in 1944 is expected to be a record.

SMALL PART OF ONTARIO WHEAT REACHES MILLERS

TORONTO, ONT.—The Dominion Bureau of Statistics recently reported that the quantity of Ontario winter wheat milled during May was slightly above that of April but less than one-quarter of the amount milled in May, 1943. The record for 10 months shows that less than 1,500,000 bus of a crop estimated at 13,222,000 bus reached Canadian millers. This is a decline of about 3,000,000 bus compared with the corresponding period last year.

A substantial part of the Ontario winter wheat crop is always retained for feeding on farms and the subnormal crop in 1943, which coincided with a general shortage of feed grains in Ontario and all over eastern Canada, was expected to result in small commercial marketings. The fact that prices were close to ceiling levels throughout the season and that western wheat could be purchased on a profitable basis did not induce Ontario growers to market their native wheat.

Millings of Ontario winter wheat by months during the present crop year with comparative figures for corresponding 10 months of previous year:

	1943-44 bus	1942-43 bus
August	320,294	535,635
September	228,204	458,857
October	169,458	501,197
November	129,012	505,721
December	136,182	411,975
January	106,861	397,266
February	80,106	359,044
March	90,007	468,286
April	78,346	381,765
May	85,709	396,371
Total	1,424,179	4,416,117

During the crop year 1942-43 the quantity milled was 5,120,631 bus. That total was exceeded slightly in 1940-41 when 5,129,701 bus was milled. Good crops were produced in 1940 and 1942 and that accounted for the heavier commercial marketings in those years.

A table showing millings of Ontario winter wheat during the past five years and for the first 10 months of the current crop year follows:

Crop Year	Bus
1943-44 (10 months)	1,424,179
1942-43	5,120,631
1941-42	3,962,862
1940-41	5,129,701
1939-40	4,716,754
1938-39	3,213,687

——BREAD IS THE STAFF OF LIFE——

DECIMAL WEIGHT CHANGE CONSIDERED IN CANADA

TORONTO, ONT.—Canadian millers are seriously considering a change from their present English system to decimal weights for all flour packages. In this they will be following the example set by United States millers. This change would bring decided improvement in the Canadian system of merchandising flour for domestic account. Those responsible have the matter under consideration and a favorable announcement is expected shortly. Presumably the proposed change would require approval by government authorities at Ottawa.

European

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Manager European Branch
52 Mark Lane *London, E. C. 3, England*
Telegraph and Cable Address,
"Northwestern Miller, Mark Lane, London"

New London Corn Exchange to Be Built After the War

LONDON, ENG.—There are many millers in the United States and Canada who have at some time or other in past years visited their flour importing friends in London and other ports of the United Kingdom. Such will have memories of the London Corn Exchange, Mark Lane, where trading in imported flour has been carried on ever since the business first started. From the time when Minnesota patents were at the height of their popularity with London bakers to the outbreak of the European war of 1914-18, the members of the London Flour Trade Association probably occupied 25% of the stands on the London Corn Exchange.

The second European war came and, in due course, the expected attacks of the Luftwaffe took place on London over a period of several months. After two or three narrow escapes the London Corn Exchange fell victim to a heavy incendiary attack which left standing only the four side walls, the 16 stone pillars and arches and the great curved iron girders which formerly supported the glass roof. Since this happened the London Corn Exchange has not been used for trading purposes, but the difficulties and inconvenience its loss would have entailed in normal times have been minimized by the fact that the Ministry of Food is the sole buyer of imported grain and flour and controls and directs distribution to eventual buyers, which means there is no need for merchants to have stands on the market.

However, there are certain branches of the trade which continue to sell their produce on sample, namely, homegrown cereals (barley, oats, etc.) and farm seeds (grass and clover). For their convenience the former office and board room of the Corn Exchange Co., leading from the exchange, has been converted into a salesroom, while the members' subscription room, also adjoining the exchange, is used likewise for market purposes. During part of the year, especially in the period from harvest time to Christmas, the homegrown cereal branch is very busy and the crowd in both the rooms overflows onto the Corn Exchange, which is open to the skies.

Meantime, the directors of the Corn Exchange Co. have not remained idle in respect to anticipated postwar trade requirements. When state control will be relaxed and to what degree no one knows, but the directors already have thought out their scheme for rebuilding the Corn Exchange, which always has been easily the largest market in the country. The Right Honorable Thomas Wiles, who is deputy chairman of the directors, has taken a prominent part in preparing a rebuilding scheme and plans have been drawn up by a leading London architect.

According to these plans, the area of the main building will be smaller than the old, in which it is claimed there was much waste of space. The projected new building will be about two thirds the width of the old one, and instead of an all-over glass roof, the glass will be confined to the northern side so as to give the best light for examining samples. Over the center will be a glass dome, while on the space taken from the market, on the south side, a block of offices will be erected. These, it is presumed, will be largely tenanted by members of the trade, many of whom have lost their former offices through enemy action.

The seed branch of the market will be provided with a building on the same site as before, which was a smaller market leading out of the larger one. The large market was always known as the "Old Corn Exchange" and the small one as the "New Corn Exchange." This will be on the north side of the main building as previously, at the request of the seed traders.

Work of reconstruction cannot begin until such time after the war as the government elects, but the directors of the Corn Exchange Co. are making the necessary preparations so that the work can be set on foot as soon as permission is given. Mr. Wiles thinks it may be three or four years after peace is restored before the work can be completed.

—BREAD IS THE STAFF OF LIFE—

BRITISH MILLING COMPANY WANTS POSTWAR DECONTROL

LONDON, ENG.—At the annual general meeting of Carr's Flour Mills, Ltd., held at Carlisle, on June 2, the chairman, F. Ivan Carr, gave a particularly interesting address on the subject of present and future conditions of the British milling industry.

In regard to present conditions, affecting his own milling enterprise in particular but also applying to the milling industry generally, Mr. Carr said that government control had become very largely stabilized. In the first years of the war he and his associates corresponded and telephoned daily and almost hourly with the Ministry of Food; today, their contracts are of a routine nature only. In a way this stability is a danger. It would be very easy for the company to slip into a blissful oblivion, analogous to the somnolent activities of a somewhat elderly sleeping beauty and to await, in that comatose condition, the magic touch of the Prince Charming of decontrol. On the contrary, however, the firm was doing all it could to avoid falling into a state of suspended animation.

There were a number of people, who ought to know better, Mr. Carr said, advocating voluntary acceptance by the flour milling industry of continued government control at the end of the war. This, the directors of his company, in any case, would fight tooth and nail, if necessary, when the time came, as they considered control the absolute negation of all those qualities of man which have resulted in his escape from the Stone Age. They regarded it as a paralytic and decadent suggestion.

Again the company was unable to present a balance sheet to its shareholders, and referring to this the chairman said:

"Actually, the company's accounts for the prewar years upon which our remuneration is based, as well as three war years, are now complete and in the hands of the Ministry of Food, but the ministry has not yet completely agreed to our figures. Even if it had, before we could present absolutely final figures, the accounts of all other millers have to be agreed by the Ministry of Food, because the lump sum granted by the government to the flour milling industry depends upon the results of all other millers."

C. E. Watnough, another director of the company, stated that the financial position of the company was sounder than ever and described the operation of the remuneration agreement between the Ministry of Food and the millers. Figures had to be set out in the precise form prescribed by the Ministry of Food and the remuneration returns of the company for one single control year occupied no less than 27 pages of forms, plus some fairly substantial explanatory schedules.

At this meeting James Hay Scott, B. Sc. (Eng.), manager of the Silloth (Cumberland) mill of Carr's Flour Mills, Ltd., and author of the treatise, "Flour Milling Processes," was elected a director of the company. A dividend of 10% for the year ending March 31, 1944, was declared, the same as the previous year.

LT. CHARLES H. PILLMAN MEETS DEATH IN ACTION

LONDON, ENG.—Lt. Charles Hastings Pillman, 4th/7th Royal Dragoon Guards, aged 23, was killed in action some time in June. No particulars are available. He was the eldest son of Charles H. Pillman of the flour importing firm of Pillman & Phillips, London, Liverpool and Bristol. His youngest brother, Lt. Robert Hastings Pillman, aged 20, of

The Late Lt. Charles H. Pillman

the same regiment, met with a tragic death in April last. These young men were grandsons of J. C. Pillman, founder of the firm of Pillman & Phillips, and G. V. Hastings, the founder of the Lake of the Woods Milling Co., Ltd.

—BREAD IS THE STAFF OF LIFE—

SOUTH AFRICAN CORN CROP

LONDON, ENG.—Estimates given by the Standard Bank of South Africa in its monthly report for June indicate that the corn crop in South Africa will be about 66,000,000 bus, against 72,000,000 in 1943. Owing to the increase in home consumption, it is thought this crop will only be sufficient to cover home requirements and that there will be nothing to spare for export.

British Bread Consumption Up; Quality of Loaf Improving

LONDON, ENGLAND.—Col. Llewellin, minister of food, says things are going well on the food front. During the latter part of last year, he reports, stocks of food were built up in full anticipation that shipping and port facilities would largely be employed on the military operations now taking place.

Better bread, Col. Llewellin told Parliament recently, is the aim of the ministry of food. It is even now better than formerly, as all the diluents have been removed from the milling grist, wheat only being used. As showing the important part that bread plays in the diet of the British people, he said that something like 4,000,000 tons per year are consumed.

Speaking to bakers on the same subject, Col. Llewellin said that consumption of flour in this country during the last few months has risen to 100,000 tons per week, which means that the equivalent annual rate of flour consumption is 5,200,000 tons per year, compared with a prewar average of 4,160,000.

Stuffed Straights

FROM THE MANAGING EDITOR'S SIFTER

By Carroll K. Michener

BREAD IN EVERYTHING.—Bread has its place in all things, it seems. It has been present or absent in all the story of civilization, and thus of influence positively or negatively upon all the history of man. This is the conclusion that must be drawn from a much read and talked about book published early this year. It is H. E. Jacob's "Six Thousand Years of Bread" (Doubleday, Doran & Co., Inc., Garden City, N. Y.). Mr. Jacob is a refugee from Nazi-dom. He knew the horrors of a German concentration camp before escaping to America, carrying with him little but the manuscript of this book, begun 20 years ago. His work was completed here, with the help of his translators, Richard and Clara Winston.

Judging from what the author says of his opus and from the tremendous bibliography in the appendix, Mr. Jacob has done a colossal job of research. He ought to know more about the history of bread than any other man living. He has not been content to tell merely the botanical, chemical, technological story. In his concept, bread goes vastly deeper into the fabric of civilization. He finds its roots in sociology, religion, anthropology, politics. In fact, he finds everything in our lives affected and conditioned by the Staff of Life.

In his enthusiasm Mr. Jacob overdoes this pleasing exaltation of bread. He could have done even a more convincing job for a number of other things—water, for example, or oxygen; or, indeed, love. Mr. Jacob is excessive in another direction. He settles everything. When he has spoken, all doubts are dispersed. He is a very wise man, indeed. But his great scholarship has misled him, as it so often misleads great scholars, and above all those who come from Central Europe, into the assumption that because he knows much about many things he knows all about everything. His shortcomings in matters of detail will be apparent—sometimes grotesquely so—to the sophisticated reader.

But the book nevertheless is sort of a literary monument. It well repays the labor of slow reading that it demands. It provokes further excursions, even into such seemingly remote fields as zoology (the opening chapter deals with the legend of the ants who grew rice); it leads off into the Eleusinian mysteries, the priest cults of Egypt, the Hebrew scriptures, Christian warfare over transubstantiation. Jesus Christ, we learn, was "the bread god." Rome fell not so much for the mixed reasons assigned by Gibbon as because of the wheat supply and bread's importance in politics. There is much about monks, demons and man-with-hoe economy in the Middle Ages; the Dark Ages become more intelligible to us as "centuries of hunger." The peasant world rebels for bread not for liberty, clear down to the French revolution. There are gory excursions into the superstitions of "bloody bread" and the great ergot plagues.

Bread first supported the arms of Napoleon and finally overthrew him, no matter what you may think of the military aspects of this metamorphosis. The Civil War was won not at Appomattox but on the wheat plains of the northern states. To Mr. Jacob it is just as simple as this: "Because the North had bread, and because the South could not eat cotton, the Civil War produced a United Nation." And finally bread helped to win World War I. "America's entrance into the war in 1917 was, among other things, payment for her 'humanitarian mistakes'—for her having tried, as long as was possible, to supply both belligerents with the staff of life. But the moment America took sides, the moment the Empire of Wheat joined hands with the allies, the outcome of World War I was decided."

Mr. Jacob is on tricky and comparatively unfamiliar ground as he stumbles through the chapter on "Bread, Health and Business." Here he runs up against the whole wheat vs. white flour controversy, the new deal agrarianism, the dust bowl political shibboleths, the up-from-slavery struggles of the American farmer, the vitamins. Out of a southwestern dust storm emerges Mr. Jacob's hero, Henry Wallace. "A man with turned-up collar stepped out of the Department of Agriculture in Washington and called a halt to all the sound and fury. . . . His was a family who, concerned with growing and marketing—the things of this world—also had due regard for the loftier, Christian aspects of their work." Mr. Wallace and the dust bowl episode have taught us, Mr. Jacob concludes, that it is a crime against nature to plow up prairie grass. He does not, it is clear, know that most of our wheat grows where only grass once grew.

The age of machines is anathema to Mr. Jacob. "The machine committed violations against nature not only in the realm of agriculture, but in the realm of nutrition as well. Scientists became aware that the modern mill was doing no good to the health of the people." But the flour miller was always in the wrong, according to Mr. Jacob. Way back in the Middle Ages "the miller was an evil man." He cheated and he stole. "All the peoples of the Middle Ages had a hatred for the miller's trade." The sins of the miller were visited upon his daughter. Ethelbert's lawbook of the sixth century provided: "If anyone molest a maidservant of the king he shall pay 50 shillings amends. Of if she be the maid who grinds at the mill, he shall pay only 25 shillings." And in present days, with science beckoning the way, the miller is still recalcitrant. He missed the right turn on the vitamin road! Here is the story of enrichment as our author tells it:

"Though the millers had taken the wrong turning, the bakers corrected their course. It was, in fact, not too easy to persuade them, and it took the Federal Food Commission three big volumes to give them the right push. But afterward, with the help of the chemists, they restored the lost thiamine to the dough. Henry Clapp Sherman, professor at Columbia University, has determined all the ways to compensate for the loss of nutrients in the mills: by adding dried skim milk and vitamin-rich yeast; by including the wheat germ in the flour or returning it to the dough; and by introducing vitamins and mineral salts in the baking."

Mr. Jacob solemnly establishes the Earle process of wheat peeling as a great milestone in the history of bread. The battle between whole wheat and enriched white bread is not yet settled, he assures us. It still rages.

Here are some miscellaneous "facts" Mr. Jacob has left with us: The sower of grain for the past few thousand years has had the lot of the stepchild in human history. . . . Bread was "invented" in Egypt. . . . Wheat originated in Abyssinia. . . . In the first book of the Bible it is clearly written that agriculture is a curse. . . . Plowing two inches deeper in the Middle Ages would have changed the history of mankind. . . . Charlemagne established the first OPA. . . . The human race has eaten more acorns than it has of wheat. . . . Because he found maize rather than the wealth of the Indies, Columbus was the forerunner of the greatest agrarian revolution in all history.

Mr. Jacob gives us a new version of how the roller mill came to America: "In 1879 Washburn, the governor of the state, sent for Hungarian engineers, and roller mills were erected all over Minnesota." (Cadwallader Washburn had been governor of Wisconsin, but the error of ascribing him to Minnesota persists in Mr. Jacob's notes, for a little later he refers to Governor Washburn—meaning Governor Pillsbury, of course—as proclaiming a day of prayer to confute locusts.)

Of the dust bowl criminals: "For 50 years they had been warned that pulverizing the earth too finely and too deeply, pulverizing such as was done by the new, gigantic plows, would rob the soil of its fatty content."

When roller mills came in, "the Washburn and Pillsbury companies swamped the United States with white flour." "The great milling companies promoted railroad construction eastward, to their consumers, and westward to the wheat region. Then, from 1903 onward, there began a steady movement of all the millers toward Buffalo. The lure was Niagara."

Hygienic modern baking is grand, but we have lost something by it: "Human sweat contains sodium chloride in various concentrations. Furthermore, it contains urea, uric acid, and lactic, formic, butyric, and caprylic acids. For thousands of years these substances were present in the bakery—and the bread did not taste bad at all."

Perhaps this is as good a point as any to stop. The book will delight you in spots, if you begin it; and in other spots it will exasperate you. But you'll probably read it through. And when you have finished you will know both less and more about bread than you did before.

. . . The best way to save the free enterprise system, wrote F. K. Bollman of the Chippewa Falls (Wis.) Woolen Mill Co. after sitting through a recent National Industrial Information Committee speech-banquet on how to do it, is to adopt and operate "an enlightened pricing policy throughout all industry." Mr. Bollum insists that "More for the Money" is the proper slogan. He says: "To make more and more goods available to more and more people at ever lower prices, without sacrificing quality, is the only way to economic progress and full employment. This makes possible increased earnings to labor and increased values to consumers."

. . . Things weren't so hot at times in the milling game even for the Father of Our Country. There were "weavel" troubles, among other things, as can be seen from the following excerpt from a letter written to General Washington in 1776 by his cousin, Lund Washington, who was caretaker of the Mount Vernon estate while Washington was away at the business of war: "These are dreadful times to give people so much trouble and vexation. . . . I have not sold one pound of flour nor have I any prospect of doing it; nor indeed have I ground any, though I intend to have some ground immediately. In all the cities below here the 'weavel' is destroying the wheat, and some people say it is in this city."

Marsh & McLennan
INCORPORATED
Chicago New York
Minneapolis

Transportation
Insurance on Flour
Against All Risks

Correspondents in American and Foreign Ports

American Ace
—A very fine, short, strong patent milled in one of the West's very finest flour mills.
American Flours, Inc.
NEWTON, KANSAS

"Hunter's CREAM"
A Kansas Turkey Wheat Flour
that for more than sixty years has stood at the very top of the fine quality list.
The Hunter Milling Co.
Wellington, Kansas

"Gooch's Best"
SUPERIOR QUALITY
to Make All Baked Things Better
Gooch Milling & Elevator Co.
Lincoln, Nebraska

ACME
BAKERS SHORT PATENT
FLOUR
Also "GOLD DRIFT"
These Brands Meet Every Shop Need
The ACME FLOUR MILLS CO.
Oklahoma City, Okla.

MINER-HILLARD MILLING CO.
WILKES-BARRE, PA.
Manufacturers of
Wheat, Rye, Corn and Buckwheat Flours

Two of the Nation's Finest Flours
"AMERICAN EAGLE"
"THE ADMIRAL"
The H. D. LEE FLOUR MILLS CO.
Salina, Kansas

National Cotton Council

(Continued from page 18.)

and figures on various uses of cotton, its research division has grown into a fully staffed organization working constantly in two of the South's largest university laboratories in a quest for new and improved uses of cotton.

True, war has necessitated a revision in much of the work of the sales promotion office. With the great majority of cotton textile output going into military uses, the task has become one of finding adequate cotton goods to meet the barest of civilian demands. The council's first advertising campaign—its "Cotton Freshness" series—which was instituted in 1941, and expanded in 1942, was curtailed in 1943 and has virtually been shelved for the duration. In its stead, the council has developed a number of co-operative programs with the United States War Department showing military uses of cotton. It has built a strong campaign in behalf of oleomargarine made from cottonseed oil, to encourage greater consumer acceptance of this wholesome food product. It has inaugurated a comprehensive program to encourage consumers to buy products packaged in cotton bags, the whole campaign revolving around the publication of a pattern book showing many of the useful and attractive articles which housewives can make from the bags after they are emptied.

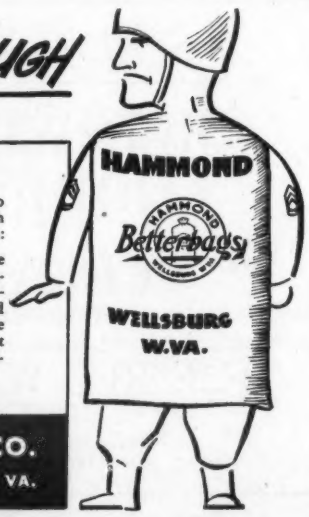
Through a series of eye-appealing advertisements in the nation's capital the council has acquainted much of America's officialdom with the cotton industry and its problems. It has, through constant contacts, built up a better understanding of the industry on the part of those officials charged with matters affecting the industry. At the same time, it has built for itself a reputation of reliability which has influenced numerous government agencies to turn to the council for information about, and assistance in matters pertaining to, the cotton industry.

Greatest tribute to the remarkable growth of the council's research division came with recent approval by the War Production Board of five projects on which the council will work for the WPB. These projects involve a widespread number of uses of cotton, with special emphasis being placed on cotton's application to plastics, and the use of newly developed electrical processes in the destruction of cotton plant insects. To conduct this research and other projects already under way, the council has consummated agreements under which laboratories of the University of Texas at Austin, and Southern Methodist University at Dallas, Texas, have been made available to its research division. Special breeding tracts also have been obtained, including one in Mexico where cotton is being grown in wintertime to speed succeeding generations of new varieties of cottonseed on which the council is working.

In its research work, the council also is receiving the full co-operation of several of the nation's greatest industrial laboratories. Working jointly with scientists employed by these industries, the council is making steady progress toward ironing out obstacles in the path of in-

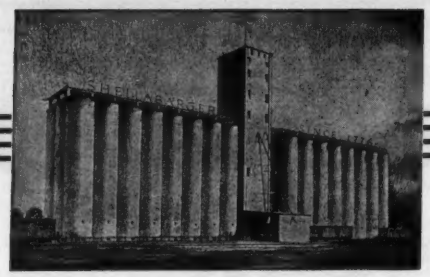
"KELLY'S FAMOUS" FLOUR
IS . . .
KANSAS' FAMOUS FLOUR
★ ★ ★ ★ ★ ★
THE WM. KELLY MILLING CO.
Capacity 2,500 Barrels HUTCHINSON, KANSAS

They've got to be TOUGH
FOR MODERN MILLERS
Hammond Bags are "TOPS IN TOUGHNESS" to protect the quality of your product during tough handling and shipping. Available in these grades:
"LUSTRO"—No. 1 Rope, white enameled, blue lined with maximum strength, pliability. "SECURPAC"—Special quality—white enameled, blue lined—our most popular grade. "CELUPAC"—Embossed white Kraft, quality—low cost. "DUPLEX"—Double wall white super-calendered, blue lined, ultra-smart appearance. Clear, sharp Multi-colored Gloss Printing. Write for Price List!
HAMMOND BAG & PAPER CO.
Paper Mill and Bag Factory, WELLSBURG, W. VA.



HAROLD A. MERRILL
Grain and Ranches
Board of Trade Building
KANSAS CITY, MO.
Member of the Kansas City and Chicago Boards of Trade

Exceptional Bakery Flours
TWELVE-40 NO-RISK PLA-SAFE
THE ABILENE FLOUR MILLS CO.
ABILENE, KANSAS
Capacity 3,000 Cwts. Daily *Grain Storage 1,000,000 Bus.*



Brimming With Country Run Wheat

This 2,000,000-bushel modern elevator is really the head of a family of busy country stations that are today filling up with a fine Kansas crop. Direct from the farmers' fields, this wheat stops here with us only to get expertly "sized up," binned and offered to you.

SHELLABARGER MILLS

3,500,000 Bushels Country Storage

SALINA, KANSAS

SPRING WHEAT FLOURS

RED WING SPECIAL
BIXOTA
CREAM *of* WEST

PRODUCE BREADS WITH TASTE APPEAL

THE RED WING MILLING CO.
RED WING, MINNESOTA

Wheat Washed with Our Own Artesian Well Water.
Flour Tested and Baked in Our Own Laboratory.

J. F. IMBS MILLING CO. ST. LOUIS, MO.
Millers of Hard and Soft Wheat Flour
DAILY CAPACITY 2,100 BARRELS

"Cremo" Just the cream of hard wheat. Crookston Milling Company CROOKSTON, MINN.

creased consumption of cotton, while at the same time seeking the discovery of new uses which might open additional markets to the fiber.

Equally as important in the function of the council for the common good of the industry is its production, processing and marketing division. This office, created many months after the beginning of the council, has expanded into a clearing house for a great majority of the industry's problems of production. To this office, have cotton farmers turned in time of war for assistance in obtaining seed, fertilizer, machinery, manpower, insecticides and many other of the planter's essentials. And this office, which in its beginning was confined for the most part to the preparation and dissemination of educational campaigns designed to improve production practices, has succeeded in obtaining for American cotton farmers most of their needs.

Typical of its activities was an occurrence shortly after the beginning of the war. When insects threatened to destroy much of the nation's war important cotton crop, the council, working through proper government agencies, obtained quantities of insecticides, dusting planes to spread them, pilots to fly the planes, replacement motors to keep the planes aloft, and an amendment to civil aeronautics regulations to permit the planes to be used. This was at a time when the manufacture of insecticides was sharply restricted, all civilian planes grounded, virtually all pilots were in military service, and airplane motors ranked at the top on the priority list. Thus did the council, in a few short weeks, repay to a great many farmers many times over what they had invested in the organization.

In preparation for the postwar period, the council also is reorganizing its export division which became inoperative with the beginning of hostilities. A sizable fund has been earmarked and set aside for use by the export division in the development of foreign markets for cotton after the war. An office has been established in Washington, D. C., manned by a person well posted on problems of foreign trade. His will be the job of preparing for the time when American cotton must begin to regain potential foreign markets.

The council has grown in other respects, too, from its start as a one-room, one-man organization. It has instituted, and constantly expanded, a cotton information service, a trade barriers section, a field service which maintains contact with cotton interests across the production belt. Its information service has developed important studies on the various uses of cotton—studies which have been of great value to many of the government's war agencies. It also has kept a constant stream of information about cotton, and the cotton industry's important position in America's economic way of life, going to persons all over the nation.

The trade barriers section has concerned itself primarily with the multitude of legal restrictions imposed upon oleomargarine and other products made from cottonseed oil. Faced in its beginning with a host of state laws and regulations harassing and restricting the manufacture and sale of margarine, the council has worked with various in-state organizations in obtaining the repeal or amendment of some of these barriers. Today, only half a dozen states impose prohibitive restrictions on the cottonseed oil product, and plans already are under way to seek the repeal or removal of several of these statutes. The trade barriers section also has launched a vigorous attack on federal laws imposing inequitable taxes on the manufacture and sale of margarine, opposing, in so doing, the powerful dairy bloc in the United States Congress.

Through its field service, the council has succeeded in bringing the entire American cotton industry closer together. The lowliest cotton farmer has been acquainted with the work the council is doing to make his product more valuable to him, and has been made to feel that his 5c per bale contribution plays an all-important part in the work. At educational meetings conducted by the council across the belt, business competitors have sat side by side working closely together to solve problems of importance to the industry.

Such has been the council's record of achievement in the space of a few short years and with the expenditure of comparatively few dollars. Addressing the group of cotton men at Cleveland, Miss., the day he proposed the formation of the council, Oscar Johnston said:

"The voice of cotton has been as soft as its lint and as low as its price. We must speak through a magnavox if we are to be heard."

Through the council, and through Oscar Johnston, who has remained continuously its president, supplying the inspiration for much of its drive, the cotton industry in America today has a voice that speaks authoritatively for all of its interests and all of its 13,000,000 members—a voice that is a stentorian roar compared to the whisper of just a few years ago.

——BREAD IS THE STAFF OF LIFE——

DONALDSON BOND CONTEST

COLUMBUS, OHIO.—Drivers of the Donaldson Baking Co. have set a goal of war bond sales in the fifth campaign of $1,000 per route, or a total of $50,000. For each bond sold, the driver will receive a promotion in "army rank," starting as a buck private. Winners in individual bond sales will be awarded trophies. Sterling Donaldson, president, and Fred E. Allen, vice president, each purchased $2,000 in bonds, to give the drivers a start. The remainder of the goal is being sought from route customers.

MINNESOTA GIRL FLOUR . . . . . long on quality!

Spring Wheat Fancy Patent Family Flour

Enriched with Vitamins and Iron

CAPITAL FLOUR MILLS, Inc.
General Offices: Minneapolis Mills: St. Paul

WOLF'S PREMIUM FLOUR

As fine a flour as you will find milled from the finest Turkey wheat in the heart of Kansas in

An Independent Mill

WOLF MILLING CO.
ELLINWOOD, KANSAS

The Standard Others Strive to Reach

WHITE SWAN
FLOUR

SPRINGFIELD MILLING CORPORATION
MINNEAPOLIS • MINNESOTA

PAGE'S FLOURS
THE THOMAS PAGE MILL CO.
Topeka, Kansas

Bowersock Mills & Power Co.
LAWRENCE, KANSAS
ZEPHYR FLOUR
AS FINE A BAKING FLOUR AS A BAKER CAN BUY AT ANY PRICE
Established 1874 1,500 BARRELS DAILY

The Williams Bros. Co.
Merchant Millers KENT, OHIO, U. S. A.
Specialists Ohio Winter Wheat Flour
All our wheat is grown on "Western Reserve" and bought from the growers at elevators we own and operate.

HIGH GLUTEN FLOURS
For Bakers
The Morrison Milling Co.
Denton, Texas
Emphatically Independent

HARDESTY MILLING CO.
Quality Millers *for* Over Half a Century
Domestic and Export DOVER, OHIO

"RUSSELL'S BEST"
"AMERICAN SPECIAL"
Our mill is located in the high protein wheat district of central western Kansas, and secures most of its wheat directly from growers.
RUSSELL MILLING CO., Russell, Kansas

RAINBO FIRM, CINCINNATI, CITED ON STALES CHARGE

WASHINGTON, D. C.—A criminal information was filed June 29, 1944, in the United States District Court for the Southern District of Ohio by United States Attorney Byron B. Harlan, charging the Rainbo Baking Co., Cincinnati, Daniel A. Loewen, the president of the firm, and Charles Barnett, sales manager, with violations of War Food Order No. 1, it was announced by J. M. Mehl, chief of the WFA's compliance branch in Washington.

Criminal informations charging the following driver-salesmen of the Rainbo company with violations of the food order were also filed: Arthur J. LaPille, George Riley, Bernard L. Brancaccio and Joseph W. Noonan, all of Cincinnati.

The baking company and the officers and driver-salemen named allegedly violated the war food order regulating the distribution of bakery products by accepting "returns" of bakery products previously delivered to retail stores.

——BREAD IS THE STAFF OF LIFE——

DULUTH GRAIN STOCKS LOW

DULUTH, MINN.—Steady and substantial grain shipments out of this terminal had trimmed elevator stocks to 8,652,000 bus at the close of business July 8, the lowest level recorded in the past six years. A year ago the stocks in Duluth totaled 38,352,000 bus of which 33,453,000 bus was wheat.

——BREAD IS THE STAFF OF LIFE——

Western Canada Visible Grain Supply

Visible supply of grain in the western inspection division July 7, 1944, and receipts and shipments during the past week, in bushels (000's omitted):

Fort William and Port Arthur—	Wheat	Durum	Oats	Barley
Semi-public terminals	23,619	1,314	9,394	8,060
Private terminals	..	..	13	2
Totals	23,619	1,314	9,407	8,062
Vancouver-New Westminster	14,301	..	149	27
Int. public and semi-public elevators	10,725	..	75	448
Churchill	1,878	..	..	..
Prince Rupert	1,209	..	..	.
Victoria	27	..	..	..
Totals	51,759	1,314	9,631	8,537
Year ago	99,595	1,328	5,276	8,058
Receipts during week—				
Ft. Wm.-Pt. Ar.	9,456	62	1,974	727
All other public and semi-public terminals, western div.	564	..	13	16
Totals	10,020	62	1,988	743
Shipments during week—				
Ft. Wm.-Pt. Arthur—				
Lake	10,251	..	365	656
Rail	10	..	61	10
All other public and semi-public terminals, western div.	130	..	..	25
Totals	10,390	..	464	692

TOTAL RECEIPTS
Aug. 1, 1943, to July 7, 1944

Ft. Wm.-Pt. Ar.	242,187	5,136	65,515	45,557
All other public and semi-public terminals, western div.	18,930	..	2,262	1,629

TOTAL SHIPMENTS
Aug. 1, 1943, to July 7, 1944

Ft. Wm.-Pt. Ar.	274,043	5,219	66,215	45,112
All other public and semi-public terminals, western div.	28,630	..	2,173	1,420

Bonded Grain in the United States

Bonded grain in the United States July 8, in bushels (000's omitted):

	Wheat	Oats	Rye	Barley
Baltimore	2,881	..	..	..
Boston	..	..	..	..
Buffalo	1,327	725	1,235	..
Afloat	791	..	..	..
Chicago	687	..	44	..
Afloat	283	..	..	..
Fort Worth	693	..	..	..
Lakes	1,200	..	..	..
New York	1,866	..	..	..
Afloat	142	..	..	..
Philadelphia	482	..	59	..
Totals	10,369	725	1,338	..
July 1, 1944	9,682	724	1,516	..

"SUNNY KANSAS"

The agreeable characteristics of SUNNY KANSAS are not picked up by chance. SUNNY KANSAS baking personality was carefully moulded to suit you.

Bakers get along instantly with Sunny Kansas

★

WICHITA FLOUR MILLS COMPANY
WICHITA, KANSAS
5,000 SACKS CAPACITY

Coast To Coast Grain Service

CARGILL
INCORPORATED

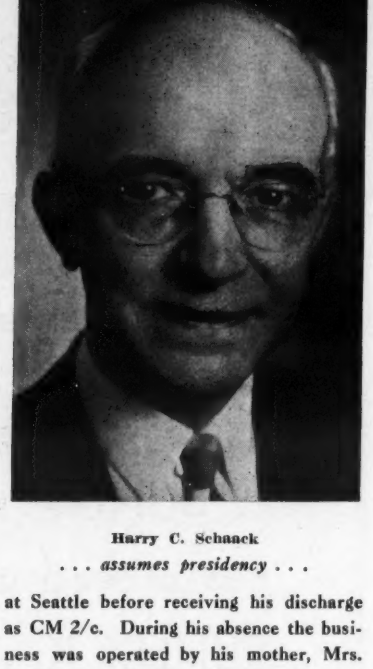
Minneapolis and All Principal Grain Markets

WHEAT
WINTER
SPRING
DURUM
• • •
By the
TRUCK-LOAD
CAR-LOAD
BOAT-LOAD
• • •
Any Where
Any Time

"ROCK RIVER" RYE "OLD TIMES" BUCKWHEAT
"BLODGETT'S" RYE
All Grades—From Darkest Dark to the Whitest White
—Specially Milled by the Blodgett Family—Since 1849
FRANK H. BLODGETT, Inc., Janesville, Wisconsin

Tom Randall
. . . in milling again . . .

Tom Randall of the A. H. Randall Mill Co., Tekonsha, Mich., after nearly two years in the Navy Seabees, has received a medical discharge and has returned to the milling business. Enlisting in September, 1942, he went overseas in the following January, landing first on Espiritu Santo in the New Hebrides. After eight months he moved to Banika in the Russell Islands and shortly afterward was in the Bougainville Island campaign. Here he became ill and was hospitalized first at Guadalcanal and later in New Caledonia and was finally sent back to the United States. He spent three months in the Navy hospital at Seattle before receiving his discharge as CM 2/c. During his absence the business was operated by his mother, Mrs. E. W. Randall, his wife, Mrs. Eleanor Randall, and the mill superintendent, Lon Burrows, who has been with the company for 18 years. The mill, now operated as a partnership composed of Mrs. E. W. Randall and Tom Randall, is in the fourth generation of the family. Great grandfathers on both sides of Tom Randall's family owned the mill at different times.



Harry C. Schaack
. . . assumes presidency . . .

Harry C. Schaack, who has been a member of the Chicago Board of Trade since 1911, assumed the office of president of the board on July 1. A member of Shearson, Hammill & Co., he recently completed his fortieth year of affiliation with the grain business. Mr. and Mrs. Schaack have four sons, each of whom carries the rank of lieutenant in various branches of the armed services.

Major George P. Urban, Jr.
. . . gold leaves for him . . .

The gold leaves of a major are now being worn by George P. Urban, Jr., who was treasurer of the George Urban Milling Co., Buffalo, before his entry into the army. Word of the promotion has been received by his father, George P. Urban, president of the company. Maj. Urban, who married while in the service, is the father of a two-year-old son whom he has never seen. His brother, Henry Zeller Urban, is an ensign in the navy.

Thelma E. Dallas
. . . Illinois secretary . . .

Miss Thelma E. Dallas has been appointed secretary of the Associated Bakers of Illinois of fill the vacancy created by the recent resignation of Miss Ann M. Patterson, who has taken up new work of a statistical nature in the baking industry. Miss Dallas is a graduate of Miami University, Oxford, Ohio, and in addition to public school teaching, has served in secretarial capacities for organizations in several fields.

Personal & Otherwise

THROUGH CENTRAL STATES

Mason B. McVeigh, general sales manager for the Rodney Milling Co., Kansas City, left last week-end for a two or three weeks' trip through the central states where he will visit the company's representatives and bakers.

GOOD BAKING

A. L. Jacobson, president of the Arnold Milling Co., Sterling, Kansas, was in Kansas City for a few days this week. He said that the first run of new wheat gave such good baking results that he has concluded Mother Nature pretty well took care of everything in the wheat berry even if she did come up a little shorter than usual on protein.

TOUR OF MARKETS

Julius Hendel, vice president of Cargill, Inc., visited the Kansas City Board of Trade for a few days last week and then continued east to St. Louis and other grain terminals.

DEATH OF FATHER

William H. Bowman, vice president and general manager of Acme-Evans Co., Indianapolis, spent the remainder of last week in Kansas City after a rush trip to get there in time for the funeral of his father, who died a week ago. Mrs. Bowman and their son, Bill, accompanied Mr. Bowman, who spent several years in the milling business in Kansas City before going to the central states.

AT HOME OFFICE

Claude F. Tillma, manager of the Pillsbury Flour Mills Co. office at Oklahoma City, is visiting headquarters of the company in Minneapolis.

INSPECTS WHEAT

Guy Grimes, president of the Inland Milling Co., Des Moines, spent a day surveying the new wheat offerings on the Hutchinson (Kansas) Board of Trade, going from there to Salina.

AT MEDICAL CENTER

J. L. Patterson, president, McNab Flour Mills, Ltd., Humboldt, Sask., is at Rochester, Minn., and expects to be there another week.

KANSAS CITY VISITOR

Fred W. Lake, executive vice president of the Colorado Milling & Elevator Co., Denver, was in Kansas City for two days last week.

RESTAURATEUR

Ray O'Brien, for many years bakery salesman for Fleischmann's in St. Paul, resigned last month to go into business for himself. He purchased Dornat's Cafe on North Lexington Parkway, in St. Paul, and is operating it under the name "Ray O'Brien's Famous Foods." Mr. O'Brien for the past year has been president of the Twin City Allied Club.

BREEZY POINT GET TOGETHER

Charles C. Chinski, of the Chinski Trading Corp., New York, is attending the annual get together of Commander-Larabee representatives, held in Breezy Point, Minn., July 11-13.

NASHVILLE HEADQUARTERS

Fred Borries, regional manager of grocery products sales for the Pillsbury Flour Mills Co., has established an office at 917 Third National Bank Building, Nashville.

OMAHA CALLERS

Recent visitors to the floor of the Omaha Grain Exchange include: Fred W. Lake, Colorado Milling & Elevator Co., Denver; William J. McNeill, Hart-Bartlett-Sturtevant Grain Co., Kansas City, and Paul Johnson, Cargill, Inc., Sioux City, Iowa.

FROM MEXICO

Vernon Tupper, Jr., who is with the Santa Marta Co., mining and construction firm at Chihuahua, Mexico, and his family are visiting his father, who is president of the Nashville Roller Mills. The son formerly was in the flour and feed brokerage business in Nashville.

IN NEW YORK

Charles F. Lingham, vice president, Federal Mills, Inc., Lockport, N. Y., was a recent caller at the New York offices of THE NORTHWESTERN MILLER.

WITH NASHVILLE TRADE

Among trade visitors in Nashville last week were R. H. Drake of Igleheart Bros., Inc., Evansville, Ind., Henry O. Evjen and Guy H. Teeter, Omar Mills, Inc., Denver, and Ray Moran, Commander-Larabee Milling Co.

MINNEAPOLIS ROUND-UP

The eastern representatives of the Commander-Larabee Milling Co's hundred percent club are in Minneapolis this week for a get-together, and to make plans for the future. Among those present are: Leon D. Minard, Scranton; George Gesegnet, Buffalo; Louis W. Seligman, Frank R. Prina, Charles C. Chinski and Louis J. Boucher, New York; L. A. Dusenbury, Syracuse; John Lennon, Pawtucket; E. A. McCauley, Baltimore; William Mackey, Wellesley, Mass; Harold Thurman, Boston; John DiVicenzo, Philadelphia; and Walter Mansfield, Johnstown, Pa.

Ellis D. English, vice president and

sales manager, and Ben S. Hargis, district sales manager, Larabee Flour Mills Co., Kansas City, are also in Minneapolis for the celebration, and will remain over for a meeting of the budget committee of the company later in the week. A number of other executives will also be present, including Harold P. Bell, of Kansas City, and F. S. Birkenmeyer, vice president, at Buffalo.

VETERAN HONORED

Oscar Z. Carlson, veteran flour salesman for the Standard Milling Co., at Minneapolis, is retiring, after 44 years of service with the company. He was guest of honor at a dinner at the Athletic Club, July 7, which was attended by the executives of the company and the heads of the different departments in the mill, and the delivery and sales staffs. Coming from Chicago for the occasion were: J. C. Bevan, president; C. A. Mackenroth, vice president and salesmanager; Joseph P. Sullivan, vice president by-products department, and Dr. A. R. Sasse, vice president in charge of products control.

HEADQUARTERS VISIT

Claude F. Tillma, branch manager at Oklahoma City for the Pillsbury Flour Mills Co., is visiting company headquarters in Minneapolis this week.

——BREAD IS THE STAFF OF LIFE——

FTC EYES OPERATION OF EXPORTING ASSOCIATIONS

WASHINGTON, D. C.—The export trade office set up by the Federal Trade Commission recently will exercise comprehensive supervision over the export associations organized under the Webb-Pomerene Act. The office also will determine the effect of export association operations on domestic trade. The new division will be under the direction of Allen C. Phelps.

For several months the Federal Trade Commission has been investigating the operation of the Webb-Pomerene Act to determine if abuses have occurred. All reports have not as yet been made to the commission so that its final decision will not be made for the next few months.

The Export Trade Office will also take over the responsibility of completing the commission's investigation. Should violations of the act be found to exist, hearings will be called by the commission to obtain all the facts involved before any orders are issued.

In going ahead with its investigation, the commission will place particular emphasis on the position of foreign governments with respect to cartel arrangements and their possible effects upon American exporters who have entered foreign agreements.

——BREAD IS THE STAFF OF LIFE——

W. C. MOELLER HONORED AT LONG COMPANY LUNCHEON

CHICAGO, ILL.—A testimonial luncheon for W. C. Moeller was given by the W. E. Long Co. staff at Hotel Sherman, June 27. The occasion marked his retirement from the Long company, where he had served for many years as chief of the cost control and accounting staff.

Mr. Long paid a fine tribute to Mr. Moeller, telling how his quiet, efficient manner and friendly warmth of personality had endeared him to all with whom he came in contact, and spoke in all sincerity for the entire company staff when he said: "We will all miss you, Bill." This resignation had been tendered two years before, but Mr. Moeller has been pursuaded to defer its effective date until this year.

A beautiful memento was presented to Mr. Moeller as a personal token of Mr. Long's high esteem and in appreciation for the contribution he had made over many years to the service of bakery cost control. In reply, Mr. Moeller expressed the feeling that in retiring from business he can now enjoy that greater freedom from engrossing responsibilities and the opportunity for rest and the closer companionship with his family to which he has long looked forward.

——BREAD IS THE STAFF OF LIFE——

Praises Enriched Flour

The War Food Administration, Office of Distribution, has issued a suggested radio script to a selected list of 100 women radio commentators urging the use of enriched flour. Because the script is exclusive in each area to which it is sent, it is believed that it will be widely used.

The release points out the value of enriched flour, and enumerates the added ingredients obtained through the enrichment process. It emphasizes the fact that all white bread and plain rolls must be enriched, but adds that only approximately 70% of white flour is enriched. Housewives are urged to buy only the enriched product.

——BREAD IS THE STAFF OF LIFE——

UNION REQUESTS STRIKE VOTE

BUFFALO, N. Y.—A request for a strike vote among the employees of six Buffalo flour mills and a mill at Lockport, N. Y., has been filed with the National War Labor Board and the United States Department of Labor, according to Stanley J. Bauer, business representative, Local 21021, Flour Mill Workers Union (AFL).

Mr. Bauer said that the union contracts expired July 1, 1943, and in September the issues were submitted to the WLB as a dispute case. He added that impatience of the employees over the delay in negotiating new contracts was responsible for the request for a strike vote as provided for by the Smith-Connally Act.

——BREAD IS THE STAFF OF LIFE——

FAVORABLE CROP OUTLOOK DISPELS SUPPLY ANXIETY

TORONTO, ONT.—With a billion-bu crop in sight in the United States and a promising outlook for the wheat harvest in Canada, apprehension regarding wheat supplies for the crop year 1944-45 has been largely dispelled, says the agricultural branch of the Dominion Bureau of Statistics, in a report on conditions in North America. The unpredictable weather man has brought about a transformation in both countries and, in place of the drouth which threatened the whole continent less than three months ago, we now have complaints of flooding.

The winter wheat crop is presently being harvested in the United States and early returns confirm the large estimate of production. This part of the crop is practically made and in another month or so the spring wheat harvest will be in full swing in the United States. The Canadian crop, however, has quite a long way to go and has still to face the critical period of growth, but as matters now stand, the general situation is good, the bureau states.

It is much too soon to interpret Canadian conditions in terms of bushels, but with a substantial increase in wheat acreage this year, maintenance of present crop prospects could only mean better than average production in the prairie provinces. Canadian farmers expressed their intention to increase wheat acreage by nearly 4,000,000 over the 1943 seeded area, but actual acreage seeded will not be known until figures are compiled for release in an official report on July 21.

★ SERVICE PINS FOR EMPLOYEES ★

Eligible employees of the Globe Mills, Ogden, Utah, a division of the Pillsbury Flour Mills Co., recently received service pins from Philip W. Pillsbury, president of the company. Shown above are seven of the employees whose service with the company totals 186 years. The men, from left to right, are: Mr. Pillsbury, C. H. B. Seybert, Sevrin Jacobsen, Charley Manley, David Dallof, Stewart MacDonald, Fred Radtke and Robert Mosher.

——BREAD IS THE STAFF OF LIFE——

ALFALFA MILL BURNS

TOLEDO, OHIO.—On July 5 the Hudson, Mich., alfalfa mill, owned by Glenn L. Miller, Defiance, Ohio, was destroyed by fire, with loss estimated at $75,000.

Grain Loadings Tax Terminal Facilities; Seek Prisoner Aid

KANSAS CITY, MO.—"Grain loadings in the country are running about equal to the ability of the terminals to absorb the receipts currently," according to Ralph E. Clark, manager of the closed car section of the Association of American Railroads, who is in Kansas City to direct the distribution of railroad equipment to handle the grain movement.

"In the last 6 days the car service division has arranged for movement of 20,000 boxcars from the east and southeast to principal western grain originating roads," said Mr. Clark, who will remain in Kansas City until the peak of the wheat movement is over. "We will move this season's crop as satisfactorily as we did last year's crop, when all of it was handled without loss."

A conference is scheduled for July 12 in Kansas City between representatives of the Office of Defense Transportation, the Interstate Commerce Commission, railroads, millers, terminal elevators and the grain trade to consider proposals to ask the war department for the use of prisoners of war to unload wheat cars at terminal elevators, and other measures to prevent a threatened embargo on grain shipments.

Senator Clyde Reed of Kansas, who will attend the conference, announced recently in Washington that he had requested information from the war department on the number of prisoners available and the procedure to obtain their services through the seventh service command in Omaha, Neb. The Kansas senator said the shipping embargo at Enid, Okla., may be extended to Kansas City and terminal points in Kansas unless something is done to solve the car shortage and labor problems.

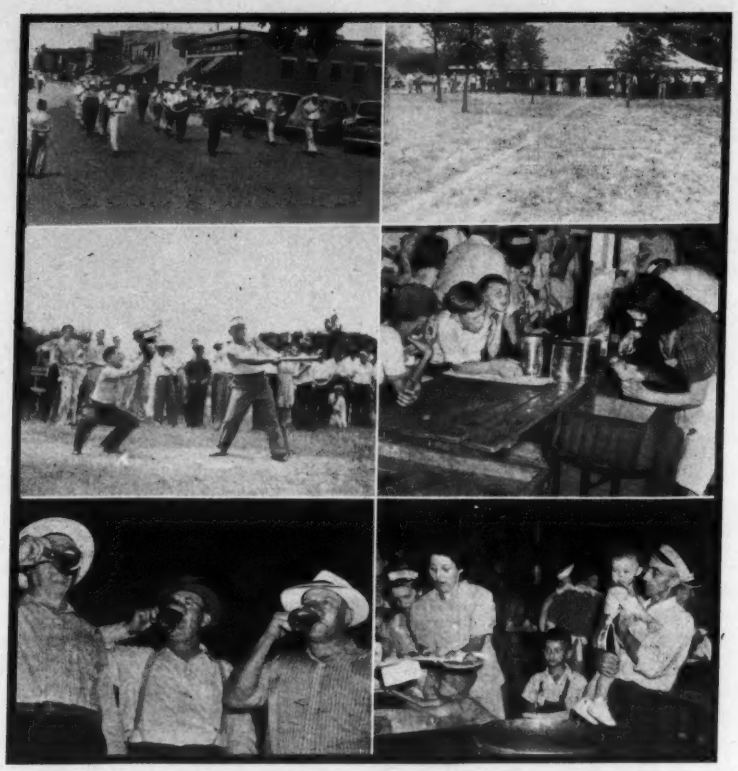
Bakers Warned on Enrichment

CHICAGO, ILL.—Warning letters charging alleged violations of War Food Order No. 1 were recently sent to 10 Minneapolis and St. Paul bakers and baking firms, citing failure to enrich white bread in the manner provided under terms of the order.

Issued by George Livingston, compliance officer, Chicago field office, Office of Distribution, War Food Administration, the letters warned the bakers that if they failed to live up to the provisions of the order by enriching their bread to the extent required under the U. S. Food, Drug and Cosmetic Act, they would be liable to severe penalties up to a maximum of one year in a federal prison or a $10,000 fine, or both.

Laboratory test disclosed that the white bread made by the 10 bakers was lacking in the vitamins and minerals required under the bread enrichment program, Mr. Livingston charged.

★ NEW ULM MILLERS GO PICNICKING ★



The pictures above were taken during the course of the afternoon at the annual picnic of the Eagle Roller Mill Co., New Ulm, Minn., June 26. The event started with a parade down main street, headed by a band, shown in the upper left. The refreshment tent is shown at top right. The left center picture shows a clean strike, with the ball in the catcher's mitt. The boys shown in the right center picture were partly responsible for the consumption of 130 gallons of ice cream while the trio in the lower left are consuming a part of the 300 gallons of beer bought for the event. The lower right picture shows the mother of the family assembling the dinner plates while the father tries to keep the children under control.

Milling Industry Has Manpower Priority Under Referral System

The flour and feed milling industries continue to be classed as essential in the priority referral system placed in operation July 1 by the War Manpower Commission. Under the system, all male labor must be hired through the United States Employment Service or such channels as it may designate. Women as well as men have been brought under the system in many communities.

Employment ceilings have been established in Group I and II communities in which labor is scarce. In many communities such limits on employment already have been fixed to prevent hoarding employees. Ceilings for major war production employers are established on the basis of the minimum number of workers required to insure required production. Other ceilings vary according to local conditions and requirements. In some communities the number of workers allowable at a plant is the number on the payroll on June 1, 1944. In other cases the June 30 payroll is the determining factor and in others the number employed on dates earlier than June have been taken.

Local manpower priorities committees have been appointed in each of the 12 districts established by the War Manpower Commission for determining what priority, if any, an industry or business establishment shall have in hiring workers. The priorities referral system requires that all new employees have referral cards from the USES office before being placed on the payroll. The WMC thus hopes to direct employees into industries in greatest need of workers. Consideration is given, of course, to the abilities and skills of the employees and WMC officials have expressed the intention of directing workers into channels where they may contribute the most to the war effort.

Both employers and employees have the right of appeal from any decision of local officials of WMC. It has not been necessary to establish new appeals units since such machinery has been in existence since the early days of WMC.

Some reports that have been made to the American Feed Manufacturers Association indicate local boards are declining to recognize the feed industry as an essential industry, despite the fact that the WMC, in its selective service directives, places the feed industry in sixth ranking position, far ahead of such industries as lumber, steel, chemicals, etc. The association has taken the matter up with WMC officials in Washington.

v v

Rules Provide for Appeals

WASHINGTON, D. C.—Flour or feed manufacturing companies in Group I or II areas which feel they are being discriminated against in the operation of the manpower priority referral system should take up their problems with representatives of the War Food Administration assigned either to a production urgency committee or the regional priority committee, according to officials at the labor procurement office of WFA here.

In sections of the country not classified as Group I or II areas where such committees are not functioning, companies will be required to take their problems up with the United States Employment Service and take appeals from the original decision to higher offices if results are not obtained.

Industry representatives in Washington say that some millers located at interior points are not covered by committees which are limited to urban areas. In these circumstances appeals for relief must be taken up through official channels as outlined above. Complaints had been registered from flour and feed mills in the Kansas City and Wichita (Kansas) areas.

——BREAD IS THE STAFF OF LIFE——

N. Y. CHARTER ISSUED

ALBANY, N. Y.—Van Vex Mills, Inc., has been chartered to conduct a business in wheat, corn, rye, etc., with offices in Rochester, N. Y. Directors are Ben Schleifer, 250 Meigs St; Rae K. Tobin, 1222 St. Paul St; Marguerite Serenati, 170 Atkinson St., Rochester.

——BREAD IS THE STAFF OF LIFE——

PERMIT SYSTEM CONTROLS OHIO GRAIN SHIPMENTS

TOLEDO, OHIO.—Grain shipments to seven Ohio markets have been placed under the permit system as a result of boxcar shortage. Under the system, country shippers must have a shipping permit signed by the Interstate Commerce Commission permit agent at the point to which the shipment is destined. Permits are withheld unless cars can be promptly handled.

The Ohio markets covered by the restriction, which became effective July 8, are Toledo, Fostoria, Cincinnati, Columbus, Lexington, Ivorydale and New Washington. Arthur W. Russell, acting secretary of the Board of Trade, has been named Toledo permit agent.

TRAVEL RESTRICTIONS

WASHINGTON, D. C.—The immediate cancellation of all nonwar connected conventions, trade meetings and conferences as well as all nonessential civilian travel was demanded by Col. J. Monroe Johnson, director of the Office of Defense Transportation. "With the invasion now actually under way, the demands on the transportation facilities of the country are increasing, not decreasing," Col. Johnson stated. "The pressure of rail shipments of war material has not yet reached its peak. Organized troop movement combined with increased casualty transportation is gaining record-breaking proportions. The hardship involved in the cancellation of business meetings involving travel, cannot be compared with either the outright danger such nonessential travel imposes on the war effort nor with the very real physical hardships now being experienced by our military forces."

RESTRICTION ON USE OF FISH OIL REVOKED

War Food Administration Rescinds WFO 60, Which Limited Use in Feeding

WASHINGTON, D. C.—Effective July 3 the War Food Administration revoked War Food Order No. 60, regulating use and distribution of fish oil, because present supply position of fats and oils is favorable.

The principal provision of WFO 60, amended May 1, 1944, required fish oil producers to set aside one third of their production for specified uses. Certified orders received by producers before July 3 still are valid and must be honored in accordance with the order's provisions. WFA authorization to issue certified orders became invalid on the date of revocation with respect to all orders not placed with a producer, he added.

The fish oil order has also limited use of seal oil and Pacific Coast herring oil, and has required manufacturers to fortify vitamin feeding oils to a minimum of 400 A.O.A.C. units of vitamin D per gram.

In its application to feed uses, WFO 60 prohibited feed manufacturers from using or consuming fish oil, as such, in the manufacture of any feed unless the oil was manufactured in compliance with the following provisions:

Except as specifically authorized by the director:

(1) No person shall use or consume fish oil in the manufacture of vitamin feeding oils unless such feeding oils are to be used for poultry feeding;

(2) No person shall use or consume any fish oil in the manufacture of any vitamin A feeding oil to be used for poultry feeding;

(3) No person shall use or consume any fish oil in the manufacture of any vitamin D feeding oil to be used for poultry feeding unless the vitamin feeding oil is fortified by him to contain not less than 400 A.O.A.C. units of vitamin D per gram; and

(4) No person shall use or consume any fish oil in the manufacture of vitamin A and D feeding oil to be used for poultry feeding unless the vitamin feeding oil is fortified by him to contain not less than 400 A.O.A.C. units of vitamin D per gram.

——BREAD IS THE STAFF OF LIFE——

ARMY REPLACES MACARONI PURCHASES WITH SEMOLINA

WASHINGTON, D. C.—It is the intention of the Army Quartermaster Corps to discontinue overseas shipments of macaroni and other similar end products and substitute shipments of semolina and other raw materials, QMC officials here report. To follow up this policy it is expected that army flour buyers will enter semolina markets within about three weeks.

——BREAD IS THE STAFF OF LIFE——

$50,000 FIRE IN OHIO

TOLEDO, OHIO.—Fire on July 5 destroyed the Delaware (Ohio) Farmers Exchange elevator. Damage, including 10,000 bus of grain, has been estimated at $50,000 by Clifford Goodings, manager.

OPA Says Tie-in Sales Must Stop

WASHINGTON, D. C.—The Office of Price Administration is preparing to issue an amendment to the fresh fruit regulation MPR 426 which will permit tie-in sales by growers and country shippers of citrus, sweet cherries, grapes, pears, peaches and apples but when this amendment was being discussed in official circles at that agency it was decided not to allow the same provision concerning tie-in sales of millfeeds and flour. According to OPA officials, the circumstances involved are not parallel and for that reason the controversial millfeed-flour question remains, with inference from OPA officials that if this abuse continues there will be sharp action taken.

In approving the tie-in sale for these commodities, OPA officials say that these products do not represent the illegal tie-in sale which has involved the requirement that a buyer take an unwanted commodity in order to obtain commodities in scarce supply. The products which can be sold under the so-called tie-in provision are generally those for which a single price is established at the grower or country shipper level without regard for size or grade.

However, the OPA now finds that buyers are declining to purchase other than the larger sizes of these commodities which penalizes producers or country shippers. These producers have threatened to stop shipments to auctions and move all their produce through wholesalers unless relief was granted. OPA officials say that they have thoroughly examined all aspects of the contention and have decided that it is necessary if the farm producer is to obtain usual markets for his produce. Commodities which are exempted from the tie-in ban at country shipping levels and at auctions may also be sold on the tie-in basis at other distributive levels, it is stated.

In explaining its side of the case, the OPA says that it will not for instance permit tie-in sales for a farm commodity such as potatoes, because in this instance it has established grade prices.

Trade attorneys here are skeptical of the OPA reasoning, and it is believed that this concession to these shippers may provoke a substantial volume of requests for similar consideration in other fields.

Other observers here think, however, that the millfeed-flour problem is one of entirely different character and cannot be classed as parallel to the forthcoming ruling.

——BREAD IS THE STAFF OF LIFE——

HAROLD HARTFORD BUYS EADES FIRM, EVANSVILLE

EVANSVILLE, IND.—Eades Bakery, 500 N. Fulton Ave., Evansville, owned and operated for the past 27 years by Alvin Eades, has been transferred on a lease and sales contract to Harold Hartford for an undisclosed consideration.

Mr. Hartford, who came to Evansville from Detroit, Mich., three years ago to become production manager of the Lincoln Bakery, took over the management of the Eades Bakery, July 8. He said he had planned no immediate change in the organization.

The two-story brick baking plant is one of the largest bakeries in Evansville. It employs 65 persons, including drivers and salesmen and operates 14 routes throughout southwestern Indiana. Mr. Hartford said there would be no change of policies and that the bakery will continue to produce pastries, as well as bread.

Mr. Eades bought the bakery in 1927 from the late Julius Rastatter, who was one of the early bakers of Evansville.

AUCTION

CHICAGO, ILL.—A drum corps paraded between games of a doubleheader at the Cubs' ball park recently, and an announcement came over the loud speakers that in behalf of the Fifth War Loan a well-known mother had agreed to allow her daughter to be auctioned to the highest bidder. Whereupon, from under the grandstand came Elsie, the Borden cow, and her calf. After spirited bidding the calf went to the Quaker Oats Co., represented by L. F. Watermulder, treasurer, for a purchase of $525,000 worth of war bonds. The company plans to allow the calf to be auctioned again at one of the Chicago theaters under the same circumstances, after which it probably will be turned over to a 4-H Club to be raised.

NEW TRUCK RATIONING NOW DONE BY ODT DISTRICTS

WASHINGTON, D. C.—The Office of Defense Transportation has announced that after July 1 all field work incidental to the rationing of new commercial motor vehicles will be handled by local ODT district offices. District managers will serve as the local allocation officer and process all applications in accordance with the policies and procedures of the allocation section of the Highway Transport Department of ODT.

Commercial vehicle operators who need to purchase new equipment after July 1 should file their application through local district offices, instead of the field office maintained by the ICC's Bureau of Motor Carriers as has been the practice.

WPB's Automotive Division has been relieved entirely of its connection with truck rationing and its work taken over by the ODT allocation section.

——BREAD IS THE STAFF OF LIFE——

DEFENDANT IN OPA SUIT

MILWAUKEE, WIS.—The Charles A. Krause Milling Co., here, has been named defendant in a treble damage suit instigated in federal court by the Office of Price Administration which alleges overcharges in the sale of hominy feeds by the company. The action asks the court to determine the amount of the alleged overceiling charges and to enter judgment for three times that amount. The OPA charges that the company based its selling price on the purchase price of No. 2 yellow corn rather than on the f.o.b. Milwaukee price, as OPA regulations provide.

This Property Available at the Crossroads of the Nation!

LOCATION: Alton, Illinois; on east shore of Alton Lake (Mississippi River) 1,400 ft. above Lock and Dam No. 26; potential river terminal facilities; served by east-west and north-south national highways. Three R.R. loading tracks at rear of main mill building; free switching to and from all railroads serving Alton. St. Louis-East St. Louis transit status.

MILL BUILDING (1): Four floors and basement with 70,000 sq. ft. of floor area. Now operating processing wheat, daily capacity 10,000 bus.

GRAIN STORAGE (2): Concrete elevator with 370,000-bu. capacity; wood crib with 50,000-bu. Federal W.H. License S-2409.

BRICK WAREHOUSE (3): 40x60 ft., two floors and basement, served by Illinois Terminal R.R. siding.

OFFICE BUILDING (4): 42x42 ft., two-story stone masonry with basement, four-car garage in rear, located on 125x125 ft. plot on corner across street from main mill building.

UNIMPROVED PROPERTY (5): 650x60 ft., on Illinois Terminal siding.

Strictly a sale proposition. No lease or rental.

Further information on inquiry, write or wire E. M. Sparks, trustee, Alton, Ill.

MARKETS IN DETAIL

U. S. FLOUR MARKETS

THE SOUTHWEST

Kansas City: Business slumped off to almost nothing at times last week, but buying that did take place plus later reports of heavy business late previous week brought sales to 100% of capacity, compared with 210% previous week and 158% year ago.

Some buyers still interested; a few especially attentive to market when government showed that it intended to hold up market. With a floor virtually placed below wheat at its present values, buyers somewhat more interested.

Family business mostly done previous week although some modest sales made this past week. Exporters await the Cuban subsidy with guns loaded for heavy rush of business. Running time good. Clears about unchanged.

Quotations July 8: established brands of family flour $3.85@3.95, bakers short patent $3.10, standard patent $3.15, straight grade $3, first clears $2.45@2.65, second clears $2.40@2.55, low grade $2.35@2.50.

One mill reports domestic business active, 6 fair, 2 quiet, 5 slow and 11 dull.

Oklahoma City: Sharp decline in sales brought average to 51% compared to previous week's approximate 200 average, and 95% year ago. Family buyers took approximately 68% of sales, bakers 32%. Operation averaged 50% compared to 82% year ago. Prices stable, closed unchanged to 14c cwt higher. Quotations July 8: hard wheat short patent flour $3.90@4.30, soft wheat short patent $2.90@4.30, standard patent $3.80@4.10, bakers short patent $3.35@3.45, bakers standard $3.25@3.35.

Omaha: Mills report wide range in volume of flour booked during week. Bakery flour in heavy demand at beginning of week, with demand later switching to family grade. Mills averaged 110% of capacity, family flour accounting for largest amount of sales. Bakery buyers have covered large part of nearby needs. Shipping directions fair to good. Prices firmer on protein grades. Quotations July 8: family short patents $3.75@4.05, standard patents $3.49@3.90, bakery short patent $3.50@3.70, high protein clears $2.95@3.14, fancy first clears $2.75@2.90, low grade clears $2.33@2.43.

Wichita: Mills operating from 65 to 90%; all behind in shipping directions because of lack of labor. Directions better than 100%, sales 10 to 100%.

Hutchinson: Interest stifled after month-end buying spree; few contracts closed. Trade looking for lower prices but lowest levels have probably been reached. Shipping directions ample to tax operating capacity, somewhat reduced by labor shortage.

Salina: Business good early, slowed down considerably later. Shipping directions continue to arrive in satisfactory manner.

Texas: Business limited mainly to routine family sales, in mostly small lots for quick shipment. This business probably averaged 20 or 25% of capacity. In addition some mills booked fairly liberal quantities of baker's running sales of those particular units up to 100% of capacity. Considerable inquiry for Mexico mainly from brokers but one mill reported to have made liberal sales direct. Operations continue about unchanged from 65 to 70% of capacity to 100% in some cases. Price on bakers advanced about 5c. Quotations July 8: family flour 100's, extra high patent $3.75@4, high patent $3.50@3.75, standard bakers under 44% ash, 100's $3.45@3.55, first clears 100's $3@3.20 del. TCP or Galveston domestic rate.

THE NORTHWEST

Minneapolis: As expected, following very heavy bookings during closing days of June, inquiry at low ebb. Sales confined to carlot here and there. For week ending July 8, spring wheat mills sold only 12% of capacity, compared with 313% during preceding 7-day period, and 102% year ago.

Undertone of market much firmer; mills generally holding quotations at ceilings, few companies out of market entirely on top grades. High protein spring wheat clears coming into own again, these may be wanted later for mixing with low protein flours. Mills endeavoring to accumulate stocks. Recent surpluses seem to have been disposed of, so clears will probably be much stronger in price. Directions holding up fairly well.

Quotations July 11: established brands family flour, enriched $4.10@4.50, high gluten bakery flours $3.54, bakery short patent $3.44, first patent $3.44, standard patent $3.34, fancy clear $3.34, first clear $3.14@3.24, second clear $2.70@2.90, whole wheat $3.54.

Outside mills, including Duluth: Very quiet; trade believed booked to limit around July 1 when subsidy was cut, now marking time; directions coming in freely. Millfeed supply still inadequate.

THE CENTRAL WEST

Chicago: Fair amount business reported; sales chiefly one and two car lots. Few orders also made ranging up to 3,000 bbls. Buying not general, however. Shipping directions fair. Slight improvement in family demand. Most mills report better demand. Deliveries only fair at best. Quotations July 8: spring top patent $3.35@3.57, standard patent $3.25@3.47, first clear $2.90@3.35, second clear $2, family flour $4.51; hard winter short $3.35@3.57, 95% patent $3.25@3.47, first clear $2.80@3.32, soft winter short patent $3.60@4.31, standard patent $3.40@4.31, first clear $2.95@3.41.

St. Louis: With new subsidy announcement, buying faded away. Mills report bookings extremely light. No large lots booked. Carlot orders to family and baker trade indifferent. Clears demand good, supply exhausted, prices firm. Jobbers find new business dull. No interest shown. Shipping directions light. Quotations July 8: soft wheat baker patent $3.26@3.46, straight $3.25@3.41, first clear $2.85@3.05; hard wheat baker patent $3.46, family short patent $3.40@3.50, straight and 95% $3.15@3.25, first clear $2.85@3.05; spring wheat baker short patent $3.40@3.60, straight $3.30@3.50.

Toledo: The deep cut in the subsidy on soft wheat of 13½c, from 18c to 4½c has soft wheat millers nonplussed, coming so soon after earlier discrimination had been removed. It is not clear how soft wheat milling business is going to continue to function.

EASTERN STATES

Buffalo: Little trade only from necessity. No substantial demand or desire to place orders beyond immediate requirements or fill out stocks. Both bakery and family trade influenced by same thought—that of watching new crop wheat situation and falling back on rather well-filled bookings. Directions continue fair; clears 5c higher. All interest centered on prospects and possible developments growing out of yield reports. Foreign trade likewise dull.

Quotations July 8: spring first patent $3.80, standard patent $3.70, first clear $3.30; hard winter short patent $3.75, 95% patent $3.65; soft winter short patent $3.75, first clear $3.25.

New York: Sales completely at standstill. Both interest and business utterly lacking in post-subsidy markets as large sales at close of June filled all needs. Buyers find no impetus to induce additional purchases. Higher prices confuse situation; trade marking time. Quotations at ceilings generally; clears tighter. Southwestern high glutens grow steadily scarcer; more mills withdraw all offers; lack of high protein wheat also affects strength of clears. Activity in northwestern high glutens slight; many mill representatives not posted on latest developments.

Quotations July 8: spring high glutens $3.95, standard patents $3.70@3.75, clears $3.40@3.60; southwestern standard patents $3.66@3.75, clears $3.15@3.30; soft winter straights, Pennsylvania $3.60@3.90, Pacific coast $3.72@3.77.

Boston: Buyers display no interest. Prices increased to allow for new subsidy rates but those who did not book ahead of increase show no particular concern; believe when crop movement hits its stride prices will be lower. Consequently activity at low point. Most buyers did not cover advance requirements; considerable volume of business expected by mill agents later in month. Commitments of minimum carlots from 30-day buyers plus a few fill-in orders accounted for week's low totals. Quietness extends to all types, including family, commitments for which dropped off when previous price levels restored. Directions on old contracts have eased up to some degree. Quotations July 8: spring high gluten $3.90@3.95, short patent $3.78@3.88, standard patent $3.68@3.78, first clear $3.55@3.65; southwestern short patent $3.78@3.88, standard patent $3.68@3.78; Texas short patent $3.75@3.85, standard patent $3.65@4.75; soft winter patent $4.10@4.40, straight $3.93@4.10, and clear $3.75@3.90.

Philadelphia: Market somewhat irregular; prices soft wheat show moderate loss, others show rather firmer undertone, prices held higher. Business generally quiet. Bakers show little interest; millers of belief there will be only small trade during near future, barring unforeseen developments. Most buyers have covered requirements for fairly extensive period; higher prices now prevailing offer little inducement to add to holdings. Near close, with announcement by WFA wheat loan values have been increased from 85 to 90% of parity as of July 1, undertone shows further strength. It is expected mills, which in some instances have been offering some kinds of wheat flour at moderate discounts under ceilings, would advance prices. Quotations July 8: spring wheat short patent $3.75@3.80, standard patent $3.65@3.70, first spring clear $3.35@3.40; hard winter short patent $3.55@3.60, 95% $3.45@3.50; soft winter straight, nearby $3.35@3.45.

Pittsburgh: Sales lively, volume not as large as previous week. Family flour sales increased. Prices have stiffened to ceilings. Flours high in proteins maintain ceiling prices better than others. Attitude of buyers now reflecting some anxiety that prices will continue to stiffen. Hard Kansas and spring wheat selling in about 50-50 proportions, sales on 120-day basis most prevalent. Clears sold in mixed cars for grain mixes on fewer terms. Shipping directions very lively. Deliveries splendid. Bakers continuing to buy in good numbers.

Quotations July 8: hard winter bakers short patent $3.78@3.80, straight $3.68@3.70, high gluten $3.88@3.90, first clear $3.65@3.70, Pacific coast $3.71@3.73; spring wheat bakers short patent $3.78@3.80, standard patent $3.68@3.70, high gluten straight $3.87@3.90, first clear $3.65@3.70; soft winter bakers short patent $4.57@4.60, intermediate $3.90@3.92, straight $3.64@3.69.

THE SOUTH

New Orleans: Market strong with no price changes, although all prices with few exceptions have gone to ceiling. Principal business in southwestern hard wheat. In northern spring wheats activity continues as usual. Midwestern and Pacific coast type doing very little. Shipping directions good. Bread, cake, cracker and macaroni production also continue good.

Quotations July 8: hard spring wheat family patent $3.64, first patent $3.44, standard patent $3.34, fancy clear $3.25@3.30, first clear $3.25, second clear $3.15; hard winter wheat family patent $3.75, bakers short patent $3.45@3.60, first clear $2.90@3.10, soft wheat short patent $4.25@4.45, straight $3.90@4.15, first clear $3.55@3.70.

Atlanta: Practically no business, fill-in sales extremely low, after surge of buying in last week in June. With wheat market showing firmer strength, prices advanced, approaching ceilings. Bakery shipping orders good. Family flour business dull. Reduction of subsidy to 4½c per bu has everyone in family flour trade disturbed. Prices approach ceilings. Extreme slowness on family flour shipping directions, practically no one desiring to add to stocks during summer. Business by blenders fair in better self-rising flour grades. Shipping directions from blenders moderate.

Quotations July 8: spring wheat bakers short patent $3.78@3.88, straight $3.70@3.85, first bakers clear $3.60@3.75; hard winter bakers short patent $3.70@3.80, standard patent $3.70@3.75, straight $3.65@3.75, family short patent $4.75@5.10, fancy patent $4.35@4.75, special patent $4.15@4.25, low protein 95% $3.75@3.95; soft wheat 95% $3.84@4.04.

Nashville: No large bookings reported; several scattered small lots for 60-, 90- and 120-day shipment made. Shipping directions generally good on older contracts

GRAIN FUTURES—CLOSING PRICES

Closing prices of grain futures at leading option markets, in cents per bushel:

WHEAT

	Minneapolis		Chicago		Kansas City		Seattle		Duluth	
	July	Sept.	July	Sept.	July	Sept.	July	Sept.	July	Sept.
July 5	160⅝	155⅝	158¼	158¼	149⅛	150⅝	145½	147	156⅛	156
July 6	159	154	156¾	157	148⅞	149⅜	145½	147	155⅛	155⅛
July 7	162⅛	157⅛	160	159⅞	151⅜	152⅛	145½	147	158	158
July 8	159⅝	155⅝	158⅜	158½	149⅞	150	145½	147	158¾	158½
July 10 ...	159⅛	155⅛	158⅝	158⅝	150¼	151¼	....	....	157	156⅝
July 11 ...	159	155	158	158½	150¼	150⅞	....	....	157	157½

	CORN						OATS			
	Minneapolis		Chicago		Kansas City		Chicago		Minneapolis	
	July	Sept.	July	Sept.	July	Sept.	July	Sept.	July	Sept.
July 5	....	....	....	....	....	....	73½	73⅝	77	72⅝
July 6	....	....	....	....	....	....	77⅛	73⅛	77	72¼
July 7	....	....	....	....	....	....	78	74	77	72⅝
July 8	....	....	....	....	....	....	77¼	73⅝	77	72⅝
July 10 ...	....	....	....	....	....	....	77¼	73⅝	75	72⅛
July 11 ...	....	....	....	....	....	....	77⅝	73½	74⅝	72¼

	RYE				FLAXSEED				BARLEY	
	Chicago		Minneapolis		Minneapolis		Duluth		Minneapolis	
	July	Sept.	July	Sept.	July	Sept.	July	Sept.	July	Sept.
July 5	116⅛	111⅞	111¼	109½	301½	304	301½	304	....	....
July 6	110	111½	110⅞	109⅛	301½	304	301½	304	....	....
July 7	112¾	114⅛	113¾	111⅝	301½	304	301½	304	....	....
July 8	112⅝	113⅞	113¼	111⅝	301½	304	301½	304	....	....
July 10 ...	113¾	114¾	114⅛	112⅛	301½	304	301½	304	....	....
July 11 ...	114⅞	115⅝	114⅞	112⅞	301½	304	301½	304	....	....

SUMMARY OF MILLFEED QUOTATIONS

Week-end millfeed quotations, summarized from the market reviews, are based on carload lots, prompt delivery, per ton, packed in 100-lb sacks, f.o.b. at indicated points.

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo
Spring bran	$....@40.40	$....@37.75	$....@....	$....@....	$....@41.55
Hard winter bran	....@40.40	....@....	36.50@37.00	38.97@39.47	....@....
Standard middlings*	....@40.40	....@37.75	....@....	38.97@39.47	....@41.55
Flour middlings†	....@40.40	....@37.75	36.50@37.00	38.97@39.47	....@41.55
Red dog	....@40.40	....@37.75	....@....	....@39.47	....@41.55

	Baltimore	Philadelphia	Boston	Cincinnati	Nashville
Spring bran	$....@....	$....@45.34	$....@46.17	$....@....	$....@....
Hard winter bran	....@....	....@45.34	....@....	....@....	....@....
Soft winter bran	....@....	....@....	....@....	....@....	43.30@44.30
Standard middlings*	....@....	....@45.34	....@46.17	....@....	....@....
Flour middlings†	....@....	....@45.34	....@46.17	....@....	43.30@44.30
Red dog	....@....	....@45.34	....@46.17	....@....	....@....

	Spring bran	Shorts	Middlings
Toronto	$....@29.00	$....@30.00	$....@33.00
‡Winnipeg	....@28.00	....@29.00	....@....

*Brown shorts. †Gray shorts. ‡Fort William basis.

A SUMMARY OF FLOUR QUOTATIONS IN LEADING MARKETS

Week-end flour quotations, per sack (cwt), packed in 100 lbs. (Canadian quotations per bbl of 196 lbs.) All quotations on basis of carload lots, prompt delivery.

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Cincinnati	†Nashville
Spring first patent	$3.35@ 3.57	$....@ 3.44	$....@....	$3.40@ 3.60	$....@ 3.80	$....@ 3.95	$....@....	$3.75@ 3.80	$3.78@ 3.88	$....@....	$....@....
Spring standard patent	3.25@ 3.47	....@ 3.34	....@....	3.30@ 3.50	....@ 3.70	3.70@ 3.75	....@....	3.65@ 3.70	3.68@ 3.78	....@....	....@....
Spring first clear	2.90@ 3.35	3.14@ 3.24	....@....	....@....	....@ 3.30	3.40@ 3.60	....@....	3.35@ 3.40	3.55@ 3.65	....@....	....@....
Hard winter short patent	3.35@ 3.57	....@....	....@ 3.10	....@ 3.46	....@ 3.75	3.66@ 3.75	....@....	3.55@ 3.60	3.78@ 3.88	....@....	....@....
Hard winter 95% patent	3.25@ 3.47	....@....	....@ 3.00	3.15@ 3.25	....@ 3.65	....@....	....@....	3.45@ 3.50	3.68@ 3.78	....@....	....@....
Hard winter first clear	2.80@ 3.32	....@....	2.45@ 2.65	2.85@ 3.05	....@....	3.15@ 3.30	....@....	....@....	....@....	....@....	....@....
Soft winter short patent	3.60@ 4.31	....@....	....@....	3.26@ 3.46	....@ 3.75	....@....	....@....	....@....	4.10@ 4.40	....@....	....@ 3.60
Soft winter straight	3.40@ 4.31	....@....	....@....	3.25@ 3.41	....@....	3.60@ 3.90	*....@....	*3.35@ 3.45	3.93@ 4.10	....@....	....@....
Soft winter first clear	2.95@ 3.41	....@....	....@....	2.85@ 3.05	....@ 3.25	....@....	....@....	....@....	3.75@ 3.90	....@....	....@....
Rye flour, white	2.97@ 3.33	3.22@ 3.32	....@....	....@ 3.53	....@ 3.43	3.40@ 3.50	....@....	3.30@ 3.40	....@....	....@....	....@....
Rye flour, dark	2.67@ 3.13	2.89@ 2.97	....@....	....@ 3.03	....@ 2.93	....@....	....@....	....@....	....@....	....@....	....@....

	Seattle (98's)	S. Francisco	Standard patent—	Seattle	San Francisco
Family patent	$....@....	$....@....	Dakota	$....@....	$....@....
Pastry	....@....	....@....	Montana	....@....	....@....

	Toronto	**Winnipeg
Spring top patent‡	$....@5.05	$....@5.30
Spring second patent‡	....@4.40	....@4.80
Spring first clear‡	....@3.30	....@....

	Toronto	**Winnipeg
Spring exports§	$9.42	....
Ontario 90% patents‡	$5.50@5.60	....

*Includes near-by straights. †Nashville prices basis f.o.b. Ohio River points for soft winter wheat flour. **In cottons, Fort William basis. ‡Second-hand jutes. §98-lb jutes. ‖280-lb cottons.

being completed almost daily. New sales consist almost entirely patent grades.

Outbound shipments slow to fairly good. Bakers' business good. Blenders' prices reduced 10@20c.

Quotations July 8: soft wheat bakers and pastry flour $3.60, high patent $4.68, extra protein content $4.75, soft wheat short patent family flour $4.95@5.05, standard patent $4.85@4.95, straight $4.60@4.75, clears $4.40@4.55.

PACIFIC COAST

Seattle: Markets continue very active; early in week midwestern buyers in market at extreme low levels. These bids unattractive to some mills, other mills booked considerably on that basis. Later sharp advance in wheat prices touched off further buying by both bakery and chain store trade. In aggregate considerable flour booked. Government in market for approximately 75,000 bbls for prompt shipment. This will be spread out to all mills as government requested offers from both interior and coast mills.

Portland: Demand continues good. Government came in for approximately 15,000,000 lbs last week—cake flour, bakers flour and cracker flour. July, August and September shipment called for, with some for immediate shipment. Reports not yet released as to how much accepted by government. Domestic buyers in market, fearing further advances in price. Eastern prices bid still low, but some mills take this business. Some Mexican sales, also some Puerto Rican.

Quotations July 8: all Montanas $3.67, high gluten $3.67, bluestem topping $3.47, cake $3.88, pastry $3.08, pie $3.08, fancy hard wheat clears $3.46, whole wheat 100% $3.46, graham $3.11, cracked wheat $3.13; all advances from previous week.

CANADIAN MARKETS

Toronto-Montreal: Sales of spring wheat flour heavy. Buyers' stocks light, they are in market steadily. Large order placed by buying agent of British Ministry of Food last week, sufficient to book entire capacity of most mills up to end of September. Quotations July 8: domestic, top patents $5.05 bbl, seconds $4.40, bakers $4.30, in 98's cotton, mixed cars, track, Toronto-Montreal freights, add 10c extra where cartage is performed. For export, government regulation flour $9.42 per 280 lbs, f.a.s., winter ports, July-August-September-October seaboard.

Winter wheat flour trade more or less suspended until price situation has been finally settled. Plenty of business offering for new-crop product but with uncertainty about price and supplies, none can be accepted. No permits for export in new-crop year have so far been issued. No old-crop flour offering. Present ceiling (July 8) $5.50@5.60 bbl, in secondhand jutes, Montreal freights.

Trade looking forward to supplies of new-crop wheat which will soon be on market. Bumper crop promised. Price under consideration, announcement expected. Meantime present ceiling is $1.26 bu, Montreal freights, equivalent to $1.12@1.14 bu, f.o.b., shipping points, according to freights.

Winnipeg: Overseas demand for Canadian flour revived last week, export sales equivalent to 2,500,000 bus of wheat, supplemented by minor amounts for West Indies. Bulk total sold for United Kingdom account, final destination not determined. Domestic demand good. Mills operating to capacity. Quotations July 8: top patent springs for delivery between Fort William and the British Columbia boundary, $5.30, cottons; seconds, $4.80; second patents to bakers $4.60.

Vancouver: Situation unchanged. Western Canadian mills working to capacity to fill heavy government orders, leaving nothing for ordinary export and making it difficult to secure supplies for domestic trade. Sufficient stocks for immediate needs but no prospect of building up any surplus for some time. Demand heavy, chiefly from baking trade. Prices firm on cash car basis for 98's cottons: first patents $5.40, second patents and bakers patents $5, vitamin B $4.90. Very limited supplies of soft wheat flour from Ontario mills available, moving to trade around $7.50, unchanged. However prospects good for increased supplies of soft wheat flour when new Ontario crop is threshed.

SEMOLINA MARKETS

Minneapolis: Business blank; recent heavy bookings estimated to have equalled about 25% of trades' requirements for new crop year; directions only fair; quotations at ceilings.

DURUM PRODUCTS OUTPUT

Following is the durum products output reported to The Northwestern Miller by nine companies in the Northwest, in sacks, with comparative figures for the previous week, a year ago and the cumulative crop year.

	Weekly production
July 3-8	94,443
Previous week	209,655
Year ago	109,041
	Crop year production
July 1-8, 1944	129,386
July 1-10, 1943	178,186

Chicago: Only scattered buying in small lots; directions little freer; No. 1 semolina $3.75, standard No. 1 $3.65.

Philadelphia: General market firm; prices show little quotable change. Offerings only moderate; inquiry confined to satisfaction of immediate needs; No. 1 fancy $4.03, No. 1 regular $3.93.

Buffalo: With 6½c reduction in durum subsidy, semolinas back at full ceiling as a selling basis, but trade being well-booked, demand light, sales negligible. Shipping directions slightly better. Trend steady; supply ample; No. 1 $3.98; durum fancy patent $3.98; macaroni flour $3.73; first clear $2.96.

St. Louis: Prices unchanged. Sales and shipping directions slow; first grade semolina (ceiling price) $3.99, granular $3.84, No. 3 $3.73, fancy patent $3.99.

OATMEAL MARKETS

Winnipeg: Rolled oats and oatmeal in poor demand. Supplies moderate. Quotations July 8: rolled oats, in 80-lb sacks $3.25 in the three prairie provinces; oatmeal, in 98-lb sacks, 20% over rolled oats.

Toronto-Montreal: Trade in rolled oats and oatmeal quiet. Ceiling prices prevail. Quotations July 8: rolled oats $3.15 bag of 80 lbs, cotton, in mixed cars; oatmeal, in 98-lb jutes, $3.85 bag, f.o.b., Toronto or Montreal.

Minneapolis: Rolled oats were quoted on July 10 at $6 per 100 lbs, bulk; 20-oz packages $2.59 case, 48-oz packages $2.82.

WANT ADS

Advertisements in this department are 5c per word; minimum charge, $1. (Count six words for signature.) Situation Wanted advertisements will be accepted for 2½c per word, 50c minimum. Display Want Ads $4 per inch per insertion. All Want Ads cash with order.

HELP WANTED

WANTED FLOUR SALESMAN FOR pastry, cake and specialty flours in New England. Fine opportunity for right man. Address 6842, The Northwestern Miller, Minneapolis 2, Minn.

SITUATIONS WANTED

WANTED—PLACE AS HEAD MILLER BY single man with good experience; no dependents, age 60 years. Available on 15 days' notice. Address 6846, The Northwestern Miller, Minneapolis 2, Minn.

CEREAL CHEMIST, QUALIFIED IN ALL phases of work, desires location in Northwest. Experienced in all types of wheat and flours including dry mixes. Address 6850, The Northwestern Miller, Minneapolis 2, Minn.

MACHINERY WANTED

WANTED—BRIGHTWOOD BOX MACHINE —Pneumatic scale packaging machine; two flour blenders. Address 4970, The Northwestern Miller, Minneapolis 2, Minn.

MILLS FOR SALE

FOR SALE — MODERN 250-BBL FLOUR mill located in heart of Pennsylvania soft wheat belt. Mill very flexible between high yield and low ash. All buildings are brick with dry sprinkler system with private siding and M.I.T. privilege. Elevator capacity of 21,000 bus. Warehouse space for 3,000 bbls flour. Feed mill with hammer mill and new upright floor feed mixer, powered by Diesel engine. Mill located in fine feeding and baking trade area. Address 6837, The Northwestern Miller, Minneapolis 2, Minn.

IF YOU NEED
CHEMICAL ANALYSES ★ TEST BAKES
PRODUCT RESEARCH ★ VITAMIN ASSAYS
LABORATORY AND RESEARCH DIVISION
THE W. E. LONG COMPANY
155 N. Clark Street Chicago 3, Illinois

Are a Couple of Trees Blinding You to This Forest?

HOWEVER well you may know your local commodity situation, you realize that the big, overall picture of world conditions is what will finally determine price—*and your own action in regard to that price.*

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RYE PRODUCTS

Minneapolis and interior mills: Few scattered cars sold. Nearby needs covered, trade waiting for outcome of new crop. Little business in rye grits for alcohol; grain receipts light, cash rye commands stiff premium; prices higher; pure white rye flour $3.22@3.32 cwt, in cottons, f.o.b. Minneapolis, pure medium $3.12@3.22, pure dark $2.89@2.97.

Chicago: Not much activity; usual steady small lot buying. Directions fair; white patent $2.97@3.33, medium $2.87@3.23, dark $2.67@3.13.

Pittsburgh: Sales showing some increase. Interest in quotations greater. Market keenly watched, bakers realizing price advances may be permanent. Prices definitely firm. Rye flour, fancy white $3.40@3.43, medium grade $3.30@3.33.

Philadelphia: Market steady to firm; shows new strength with prices held higher. Offerings less liberal, buyers show little more interest; white patent $3.30@3.40.

Portland: Pure dark rye $3.51, medium dark rye $3.62, Wisconsin pure straight $3.95, Wisconsin white patent $4.11.

Buffalo: Demand fair; trend steady; supply ample; white $3.43, medium $3.33, dark $2.93.

New York: Interest and sales lacking; pure white patents $3.40@3.50.

St. Louis: Prices steady. Sales and shipping instructions fair; pure white $3.53, medium $3.43, dark $3.03, rye meal $3.28.

MILLFEED MARKETS

Minneapolis: Still no mill offerings. Dozen or more buyers waiting for every ton produced, mills have difficulty in accumulating enough to even take care of mixed and split-cars.

Oklahoma City: Millfeed active with limited offerings. For southern deliveries: bran, mill run, shorts $1.90@1.95 cwt. For northern deliveries: bran, mill run, shorts $1.85@1.90.

Omaha: No change in situation, demand continues very good.

Wichita: Demand far exceeds supply; (basis Kansas City) $36.50.

Hutchinson: Demand keen; trend firm; supply lacking; bran, mill run, gray shorts $36.50@37.50 (Kansas City basis).

Salina: Demand extremely good, trend steady, supply insufficient. Ceiling prices continue to prevail on bran and shorts.

Fort Worth: Supply inadequate; situation tight as ever. Practically no carlot offerings. Production going in mixed cars with flour; wheat bran and gray shorts $43.20, in mixed cars, del. TCP or group 3.

Chicago: No offerings; all grades $40.40, jobbers' ceiling price.

Toledo: Some relief from pasturage and green feeding, but demand for millfeed still absorbs all supplies at ceiling levels.

Buffalo: Output lags; demand at high level, with result supplies inadequate to satisfy trade. Trend firm; supply light; all varieties $41.55 in straight carlots, f.o.b. Buffalo.

New York: Supply scarce; $46.06.

Boston: Demand unabated; available supplies still scarce. Small quantities for resale, both domestic and Canadian, trickle into market but bulk of mill supplies going toward filling prior commitments. Mill quotations strong at ceilings; spring bran, midds., mixed feed and red dog $46.17.

Philadelphia: Demand moderate; trend firm; supply light; std., pure spring and hard winter bran $45.34; soft winter, nominal; std. midds., flour midds. and red dog $45.34.

Pittsburgh: Oats more plentiful; prices lower. Bran, shorts, middlings almost nil, but when found maintain ceilings of $44.10 @44.60, sacked and delivered.

Atlanta: Practically no change except demand little less urgent due to pasturage coming in; only feeds obtainable almost all in mixed cars with flour; most feed dealers and mixed feed mills have acquired fairly good stocks of grains and little interested in additional supplies; bran and gray shorts firm at ceilings of $46.30@46.80, ground feed wheat $52.50, ground oats $67.50, ground barley $68.50.

Nashville: Demand exceeds offering; supply tight; pastures fair. Prices at ceilings, bran and shorts $43.30@44.30.

Seattle: Supply fair; $36.50.

Portland: Mill run, bran, shorts, midds. $36.50 ton.

Los Angeles: Very little available; Kansas bran $47.50.

Toronto-Montreal: Bran easier, mills able to take care of all orders, no surplus. Shorts in fair supply, middlings continue extremely scarce. Export trade limited. Prices at ceiling. Domestic ceiling, bran $29, shorts $30, midds. $33 ton, net cash terms, bags included, mixed or straight cars, Montreal freight basis.

Winnipeg: Despite improved feed situation, demand excellent with supplies far short of requirements. All available supplies moving freely, chiefly to eastern Canada. Bran $28, shorts $29, Man. and Sask.; Alberta bran $25.50, shorts $26.50; small lots ex-country elevators and warehouses $3 extra.

Vancouver: Trend steady, prices unchanged at ceiling levels. New supplies difficult to secure from western mills despite fact mills are working at capacity levels on government flour orders. Domestic demand very good, supplies in dealers' stocks only sufficient for immediate needs. Quotations on cash car basis: bran $29.80, shorts $30.80 and midds. $33.80.

United States Grain Stocks

Commercial stocks of grain in store and afloat at the principal markets of the United States at the close of the week ending July 1, 1944, and July 3, 1943, as reported to the United States Bureau of Agricultural Economics, in bus (000's omitted):

	American		Canadian in bond	
	July 1 1944	July 3 1943	July 1 1944	July 3 1943
Wheat	93,605	175,218	12,403	10,307
Corn	11,874	9,663	...	...
Oats	6,471	7,746	732	840
Rye	20,145	23,309	2,273	868
Barley	6,924	9,028	19	1,238
Flaxseed	1,868	529	57	...

Stocks of United States grain in store in Canadian markets July 1 (figures for corresponding date a year ago given in parentheses): wheat 2,438,000 (none) bus; corn, 893,000 (1,322,000); oats, none (none); rye none (24,000).

Rye Flour Output

Following is the rye flour output reported to The Northwestern Miller by mills at Chicago, Minneapolis and outside points in the Northwest, in sacks, with comparative figures for the previous weeks:

	June 17	June 24	July 1	July 8
Five mills	32,595	26,235	33,648	*15,958

*Four mills.

Flaxseed Receipts, Shipments and Stocks

Receipts, shipments and stocks of flaxseed at principal primary points for the week ended July 8, in thousand bushels, with comparisons.

	Receipts		Shipments		Stocks	
	1944	1943	1944	1943	1944	1943
Minneapolis	207	*...	47	*...	664	*...
Duluth	35	6	84	252	857	185

*Figures not available.

Millfeed Receipts and Shipments

Receipts and shipments of millfeed at the principal distributing centers for the week ending July 8, in tons, with comparisons:

	Receipts		Shipments	
	1944	1943	1944	1943
Minneapolis	...	...	12,120	*...
Kansas City	300	1,075	3,125	4,350
Philadelphia	440	260	...	...
Milwaukee	...	...	3,270	3,080

UNITED STATES VISIBLE GRAIN SUPPLY

Visible supply of grain in the United States, as compiled by the secretary of the Chicago Board of Trade, in bushels (000's omitted) of date July 8, and corresponding date of a year ago:

	Wheat		Corn		Oats		Rye		Barley	
	1944	1943	1944	1943	1944	1943	1944	1943	1944	1943
Baltimore	4,270	1,700	10	146	58	20	87	89	3	2
Boston	...	...	...	...	...	...	...	...	...	...
Buffalo	12,714	3,667	503	1,577	3,284	1,440	3,012	4,340	398	1,176
Afloat	...	...	...	...	...	...	...	...	...	61
Chicago	9,054	3,328	4,793	1,867	578	1,206	12,874	7,546	626	1,022
Afloat	...	...	...	...	...	...	...	...	...	...
Duluth	6,110	33,532	..	131	408	300	240	2,156	875	1,842
Fort Worth	8,234	11,181	208	179	385	52	9	44	85	102
Galveston	2,371	5,389	..	..	..	..	..	..	..	..
Hutchinson	3,488	8,702	..	..	..	..	..	..	..	..
Indianapolis	1,358	894	1,309	1,245	78	111	32	85	..	16
Kansas City	12,449	27,719	1,061	353	25	217	158	756	137	255
Milwaukee	2,339	316	171	29	2	7	225	156	1,975	1,187
Minneapolis	13,190	28,939	202	203	38	1,254	2,516	6,204	1,214	1,831
New Orleans	854	1,991	3	56	34	14	18	1	..	..
New York	842	197	4	58	13	..	1	1	..	2
Omaha	4,099	7,816	1,688	1,103	30	258	98	348	39	139
Peoria	304	58	568	112	..	..	..	..	63	188
Philadelphia	1,696	1,306	116	47	14	11	41	38	..	2
St. Louis	3,521	4,316	884	360	43	347	53	349	49	279
Sioux City	448	1,005	100	98	15	21	36	15	24	35
St. Joseph	1,878	3,231	613	222	237	516	17	7	32	150
Wichita	4,167	6,824	4	4	1	11	..	..	2	27
Lakes	1,127	..	..	..	..	..	..	..	..	..
Totals	94,513	152,101	12,242	7,790	5,243	5,785	19,417	22,175	5,522	8,255

STALEY'S
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GRAIN PRODUCTS
ANIMAL and
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INVADER
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"BUFFALO"
Tops in Bakery Flours
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THE WILLIS NORTON CO.
Quality Millers Since 1879
Capacity 1,500 Bbls. WICHITA, KANSAS

OPA INTERPRETS CEILINGS ON OKLAHOMA OATS, BARLEY

DALLAS, TEXAS.—The regional office of the Office of Price Administration has issued an interpretation under MPR No. 511, which establishes prices for No. 2 and No. 3 red oats and No. 2 and No. 3 barley produced in Oklahoma. This interpretation provides for prices on track, for No. 2 red oats of 82½c bu, and 81½c for No. 3 red oats, $1.14 for No. 2 barley and $1.13 for No. 3 barley at all points where produced, included in the following territory:

All that part of the state of Oklahoma lying east and south of the Rock Island railroad, running from the western boundary of the state through Elk City to Clinton, thence east on the Frisco through Pawnee to Tulsa, thence southeast on the Missouri-Kansas-Texas railroad from Tulsa to Muskogee, thence on the Frisco northeast from Muskogee to the eastern boundary, including all points on these lines except all intermediate stations on the Rock Island from Elk City to the western boundary and all intermediate stations on the Missouri-Kansas-Texas railroad from Tulsa to Muskogee.

For all other points in Oklahoma, where the above grains are produced, the f.o.b. price on No. 3 red oats shall be determined by deducting from 93c bu, the maximum car lot domestic rate from point of production to Galveston. The f.o.b. price on No. 3 barley shall be determined by deducting from $1.30 bu, the maximum car lot domestic rate from point of production to Galveston. The f.o.b. price on No. 2 barley will be 1c premium over No. 3, and No. 2 red oats will be 1c premium over No. 3.

Delivered prices are to be figured by adding cost of transportation to destination, plus normal markups allowed.

——BREAD IS THE STAFF OF LIFE——

COST OF LIVING RISES SLIGHTLY IN APRIL-MAY

WASHINGTON, D. C.—Retail prices to wage earners and lower salaried workers in large cities rose 0.4% between mid-April and mid-May, Secretary of Labor Frances Perkins has reported. "The increase was largely due to seasonal advances for food and higher house furnishings prices," she said. "Clothing costs and charges for services also rose slightly. The all-items index of the Bureau of Labor Statistics stood at 125% of the 1935-39 average, on May 15, which was 0.1% below last May.

"Retail food costs increased 0.7% over April, primarily because of seasonal increases in prices for roasting chickens, oranges, potatoes and some other fresh vegetables. Prices for flour, corn meal, rolled oats, cookies and soda crackers were higher as a result of Office of Price Administration adjustments earlier in the year in ceiling prices charged by processors. Fresh fish, eggs, beef and pork were lower, due to large supplies.

"Food supplies generally are more plentiful than last spring and the increase in the amount of food available for the civilian population, combined with the rollbacks and subsidies introduced last summer, has brought the index of retail food costs 5% below the level of May, 1943."

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BUCKWHEAT

CHOICEST CANADIAN *Hard Spring Wheat*

and perfect milling facilities have placed our products in the van.

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THE DOMINION FLOUR MILLS, LTD.

Cable Address: "DOMFLOUR" MONTREAL, CANADA

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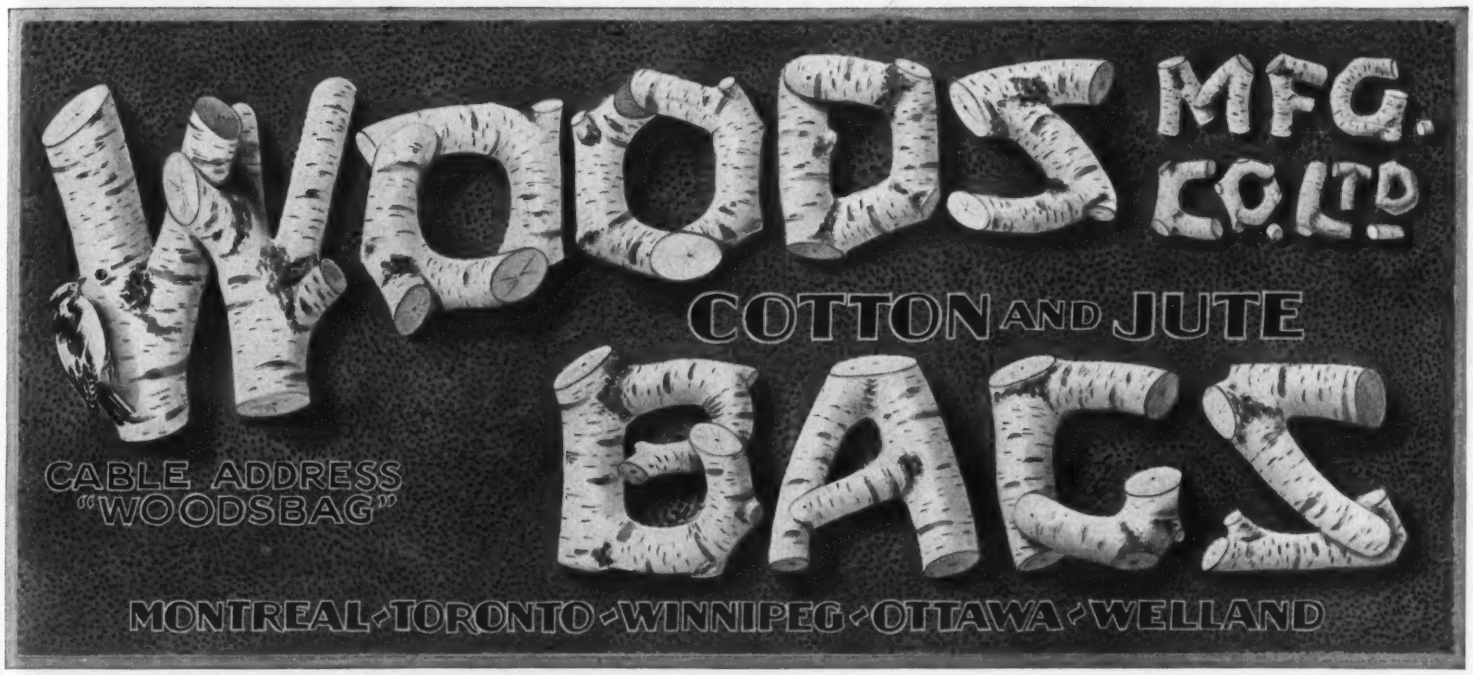

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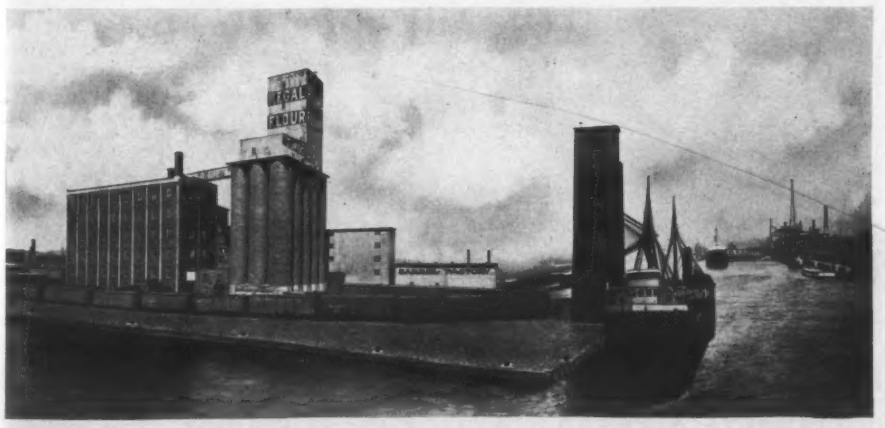

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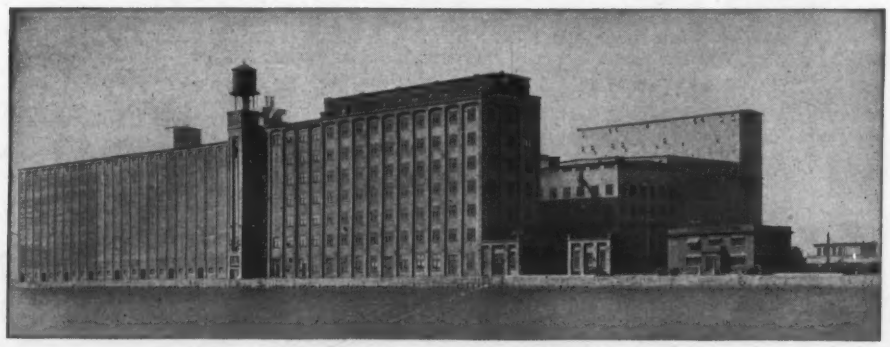

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WFA Increases Grain and Cereal Product Purchases in April

WASHINGTON, D. C.—Purchases of grain and cereal products by the War Food Administration during April for lend-lease, the territorial emergency program, the Red Cross and other purposes amounted to $6,368,440, bringing total purchases of these commodities since January to $58,901,523.

The agency also reported that 6,682,655 lbs of fats and oils were purchased in the month at a cost of $666,742. Total cost of these commodities since the first of the year amounts to $13,173,238.

April purchases of most commodities varied widely from March acquisition since the agency has no regular purchase schedule on most commodities, and purchases depend upon transportation and storage facilities as well as offerings of the product.

In the cereal and grain products purchases, 11,185,000 lbs of feed were purchased, approximately 95% of which went to the Hawaiian Islands and the Caribbean area under the territorial emergency program, drawn up under agreements with the insular governments.

Largest purchases of feed during April were of rolled barley, totaling 4,400,000 lbs, with 3,065,000 lbs of mill run wheat. In the foods category, the largest purchase was of semolina, totaling 13,040,000 lbs.

Total purchases of all commodities during April amounted to $120,890,469, bringing the total for the year to $744,287,807.

—BREAD IS THE STAFF OF LIFE—

SAFEWAY BUYS SKAGGS BAKERY

SALT LAKE CITY, UTAH.—Safeway Stores, Inc., has purchased property in Salt Lake City which includes a bakery and store operated by the O. P. Skaggs Co. Cost of the transaction was estimated at $65,000.

The property, which occupies six average building lots, will be used primarily as a bakery with the present plant being supplemented by machinery moved from Safeway's present bakery in Salt Lake City. The latter plant will be closed and the space utilized in connection with the company's grocery warehouse at the same location.

O. P. Skaggs Co. will go out of the bakery business in this territory, continued the announcement. Its retail grocery outlets, however, will continue serving customers with bakery products.

—BREAD IS THE STAFF OF LIFE—

PITTSBURGH COURTESY CLUB MEETS

PITTSBURGH, PA.—The Pittsburgh Bakers' Courtesy Club recently held its first social event in two years at the Shanopin Country Club. Ben H. Peoples, Pittsburgh representative of the Ismert-Hincke Milling Co., was chairman. Nels Anderson, of Anderson Bakery, Warren, Pa., got the prize for the baker who had journeyed farthest to the party. S. P. Stallworth, of Ertl's Bakery and vice president of the Pennsylvania State Bakers Association, told of the splendid progress being made on the state association's drive to enlist new members. He also told of the shortage of sugar to bakers, and asked each member present to write their congressmen, urging an increase in the sugar allotment to bakers.

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A High Grade Baker's Spring Patent
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Manufacturers and Importers
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Paper Bags for Sugar, Cereals, etc., manufactured at Vancouver plant

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Capital Deposited in U. S...... 500,000
Surplus for Protection of Policyholders..... 2,930,199

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Insurance on Flour
Policies of this Company are held by all leading millers

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Brands: Lebanon Bell, Flake White, Fluffy Ruffles
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Member Millers' National Federation
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SHORT PATENT FLOUR
Only highest grades spring wheat used; produces excellent bread of fine flavor. Ask for samples.
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ALFALFA MEAL
Ideal for Poultry Mashes
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Family Flour De Luxe
THE CRETE MILLS
CRETE, NEB.

EVANS MILLING CO.
INDIANAPOLIS, IND., U. S. A.
Manufacture Kiln-Dried WHITE CORN PRODUCTS
Capacity, 16,000 Bushels

GRIST OF GRINS

SCENE IN EMPIRE STATE TOWER

Timid Girl.—Where do we go if the cable breaks?

Elevator Operator.—Don't worry about that, there are countless other supporting cables.

Timid Girl.—Where do we go if they all break?

Elevator Operator.—That depends on the kind of life you've led.

GET TO THE POINT

Petulant Salesman.—How about seeing your boss?

Smooth Secretary.—He's tied up at a meeting.

Petulant Salesman.—When will the meeting be over?

Smooth Secretary.—As soon as you leave the office.

SMART ALEC

Mama was proud of her son, Willie, who had been promoted at school.

"What did you learn in biology today?" she asked after he had been in the class for a week.

"Oh, I learned that a cat may have nine lives, but a frog croaks every night!" replied the young smart alec.

SAVED COMPANY

Friend.—How did you win that medal?

Soldier.—I saved the lives of my entire company.

Friend.—Wonderful! And how did you do that?

Soldier.—I shot the cook.

MYSTERIOUS CHEESE

Customer.—Remember that cheese you sold me yesterday?

Grocer.—Yes, madam.

Customer.—Did you say it was imported or deported from Switzerland?

SAME THOUGHTS

Contributor (in a letter).—I am a speedy worker. I finished the enclosed article in an hour and thought nothing of it.

Editor (in replying).—I got through your article in a fraction of that time, and thought nothing of it.

BROADWAY INCIDENT

First Man.—Why do you look so sad?

Second Man.—Just learned that my rich uncle was in a serious accident.

First Man.—Cheer up, he's leaving all his money, isn't he?

Second Man.—That's just it—there's hope held out for his recovery.

THAT PLUMBER

Plumber (arriving late).—Well, how is it?

Man.—Not so bad. While we were waiting for you I taught my son to swim.

An EXTRA HOUR OF DOUGH STABILITY WITH WISDOM DIA-GLUTEN FLOUR

A new development which greatly extends fermentation tolerance. Provides more time for "cutting over" or giving dough extra punches. If you want a flour which will stand abuse, write or wire

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A Specialty
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Capacity, 700 Barrels
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Millers of
• CERESOTA • ARISTOS
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Dependable Hard and Soft Wheat Bakery and Family Flours
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ST. LOUIS, MO.
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NA-110

Tune him in...who cares?

The Lord Haw-Haws of the Axis are on the air most of the day and night. Tune 'em in some time . . . just for a laugh. Nobody cares a hoot if you listen even if you *like* that kind of ersatz thinking.

Sure it's enemy propaganda. But a free country can take it in doses as big as they send and no harm done. Right beside us is the antidote . . . the facts. They reach us every day through our own newspapers, magazines, the radio. Not twisted, or changed around, or suppressed, but by and large accurate, complete and honest. If you think you're being fooled, you can always go look for yourself.

That's how the thing works in a free country. In the slave states, the Nazi big shots are so scared that the common people will hear the facts that they stop their ears . . . with bullets.

If we at General Mills had to work under such conditions, we'd last about as long as, well, as long as the Axis. And we don't mean a thousand years. As it is, we can carry on our manufacture of good grain into good food, develop new products, plan our future because we know the facts we rely on are genuine. Because our future, and yours, rests on a foundation deep in the soil of freedom.

GENERAL MILLS, INC.